SAVAGE SURVIVALS

BY

J. HOWARD MOORE

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PUBLISHER'S NOTE.

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PART I.

Origin of Domesticated Animals

1. A Sub-course of Five Lessons.

This lesson on the "Origin of Domesticated Animals" is intended to be a preparation for lesson two. And lessons two and three are intended to prepare for lessons four and five on "Savage Survivals in Higher Peoples."

The first three lessons of this series are, therefore, not directly ethical—only indirectly so. They are intended to make plain lessons four and five, which *are* ethical.

We study first the survivals of wild life in domesticated animals, and then the survivals in man. But before we can study the wild survivals in domesticated animals, we must learn first that domesticated animals were once wild animals and

learn something about the kind of lives they lived.

2. Domesticated and Wild Animals.

All domesticated animals have come from wild animals. Man was once a wild animal himself—before he had invented houses, and farms, and clothes, and vehicles, and art, and science, and before he had acquired the enterprise to domesticate other animals.

In many cases it is possible to put our finger on the particular wild species from which each domesticated variety has come. In other cases this is impossible. This may be due to the fact that the changes in the domesticated race have been so great that it is no longer possible to identify the ancestral species; or it may be because the wild part of the species has been exterminated since domestication began and the species exists now only in the captive state. This last is true of the camels. There are no wild camels. All the camels there are in the world are associated with men.

"Wild" is an adjective which is applied to those races of beings which are not associated with man. Wild animals are sometimes thought of as being in an unnatural state. This is not true. It is the surroundings of the domesticated animals and of man that are artificial.

Animals are domesticated for various purposes —the sheep for its hair, the horse for its strength

and speed, the cow for her muscles and milk, the pig for its "bacon," fowls for their eggs and feathers, the dog for hunting and companionship, the bee for its sweets, the canary for its song, and the goldfish for its grace and beauty.

Most domesticated animals have been greatly changed, both in body and mind, during the period of their domestication. These changes have been made in order to fit the animals more perfectly to human needs. And these changes are destined to continue to go on thru the ages to come. The mammoth apple and potato have come from wild ancestors so small and tasteless that our luxurious palates would today regard them with disdain. We wouldn't likely eat the wild potato in the condition it was in when the Indians began to cultivate it. We have too many other things that are better. But the Indians ate it because their sources of nourishment at that time were very few.

The great changes in domesticated animals (and plants) have been brought about by *Selection,* that is, by the long and incessant choosing of the more suitable for breeding purposes. Farmers select the best corn and the largest potatoes to be used for planting. And in the same way they select for breeding purposes the sheep with the longest and finest wool, and the best-laying hens. The domestic chicken is a bird; and in the wild state it lays a nestful of eggs in the spring and hatches them, and then lays no more till the next

spring, like other birds. But by selecting for breeding purposes those hens that had a tendency to lay more eggs man has developed breeds that now lay eggs the year around.

In the same way cows have been developed to give milk for a year or two after the birth of a calf, altho naturally, in the wild cows, milk is produced for only a short time after the calf is born and serves as food for the calf until it is able to get its own food. By repeated emphasis of any peculiarity, either of mind or body, it can be developed in time to an extent almost without limit. It has been by this simple method of selection that "green roses" have in these later times been produced, and the spineless cactus, and seedless grapes, apples, oranges, bananas, and pineapples. This process is called Artificial Selection, because it is carried on by man.

Science teaches us that it has been thru a similar process of selection carried on by *nature* and extending thru millions of years that all of the different species of animals and plants existing on the earth have originated. The first animals were the lowest, and from these, thru Natural Selection, operating thruout immeasurable periods of time, have arisen all the higher animals, including man.

3. The Dog.

The dog is probably the oldest of human associates. It was domesticated by man at a very

remote time, long before history, probably before England was an island, and when the long-haired elephants, called *mammoths,* still roamed the plains of Europe.

The dog was probably domesticated first as a pet, and later developed into kinds suitable for use in hunting, herding, burden-bearing and the

"THE DOG IS A CIVILIZED WOLF"

like. All savages have dogs. The dog was the chief domesticated animal of the American Indians. Pictures of the grey-hound are found on some of the pyramids of Egypt, showing that this particular breed of dogs had been already developed even in that far off time.

The dog is a civilized wolf. Darwin thinks that dogs have come from several species of wolves domesticated at different times in different parts of the world.

There are at least 175 different varieties of the domesticated dog. There are as great differences in intelligence and civilization among the different races of dogs as there are among the different races of men. The collies (sheep-dogs) and St. Bernards are among the most advanced of the

canine races. The Eskimo dogs, on the other hand, are little more than wolves in harness. They look like wolves, they have the wild nature of wolves, their ears stand up straight like those of wolves, and their vocal utterances are more like those of wolves than like the bark of ordinary dogs. Wild dogs generally howl when they have anything to say, while the domesticated dogs bark.

The Scotch highlands would be useless for sheep-raising if it were not for the collie. The collie is a Scotch dog, and is used extensively in Scotland to help in handling the sheep, because it is cheaper than men. A dog will work for its board, but a man will not.

The St. Bernards are large, beautiful dogs, with wonderful eyes and faces. They belong chiefly to the monks of Alpine monasteries. They are famous for their service in saving human life. One of these dogs died some years ago wearing a medal for having saved 22 human lives. All St. Bernard dogs were once destroyed by an avalanche, except three.

The bull-dog is noted for its massive jaws and great will. It was probably developed in early times to aid in handling cattle, especially the less ruly bulls. Man must have had a pretty hard time, before he invented fences, in handling his cattle, which were then much wilder and much harder to manage than now. And he probably developed this breed of dogs with big strong bodies, powerful jaws and will, and fearless natures, to

help him manage his half-wild herds. The fact that the bull-dog, when it has anything to do with cattle, goes to their head and tries to get hold of their nose and pull them down, seems to bear out this theory. The collie tends to go to the rear and drive, rather than in front to head off. The bull-dog is passing away, because its purpose has been served.

The bull-terrier is a degenerate of the bull-dog. Its use as a household pet and companion is not a compliment to human taste. It is not to be compared with the fox-terrier in sprightliness, beauty, or intelligence.

The turn-spit has short legs and a small body, and was common in kitchens before the introduction of modern machinery. It was the motor of the tread-mill. Man was pretty short on power before he hitched up steam and electricity, and so he developed the turn-spit to do odd jobs for him in the kitchen, just as he developed the hound to catch things for him that were too fleet-footed for him to catch.

Pointers and setters have been developed in the last 150 or 200 years. The pointing practice is probably the exaggerated pause of the dog before springing. When a dog comes upon anything suddenly, it always pauses a moment for inspection before going on. By selecting for breeding purposes those dogs that paused the longest, a kind of dog has been developed that doesn't go on at all, but stands perfectly still when it finds some-

thing and looks steadily in the direction of what it has found. We call it the *pointer*.

The Dog Family is a group of flesh-eating animals. It includes the wolves, foxes, jackals, and domesticated dogs. They all feed on the flesh and blood of other animals.

The wild dogs, that is, the wolves, foxes, and jackals, are by nature fierce, suspicious, and treacherous. And, whether the domesticated dog has been derived from one species of wolf or from several, or from the jackal, or from some species of wild dog now extinct, its nature must have been originally that of the Dog Family in general, that is, fierce, suspicious, and treacherous.

The dog has been completely revolutionized in its nature since its domestication. It is now the most devoted, affectionate, and trustful being in the world. It has been said that the dog is the only being that loves you more than he loves himself. The collie watches after and protects and loves the very beings which its ancestors fed upon. No finer instance of devotion has ever been known in this world than that of Grey Friar's Bobby, a dog which slept on his master's grave for twelve years, until he died. A memorial has been erected to this remarkable animal in the city of Edinburgh, where he lived.

It is probably not saying too much that the dog, since its domestication back somewhere in the distant centuries, has made greater progress in intelligence and civilization than any other animal

on earth, not even excepting man.

4. The Cat.

The domesticated cat has come from the wild cat—not the American wild cat, however, for the cat was domesticated long before America was discovered by the white people.

Some wild cats have long tails and some have bob tails. The domesticated cat is, of course, from some long-tailed species, probably the wild cat of northern Africa.

The cat has not been domesticated so long as the dog, and it has not been selected so much for its devotion and intelligence. Its business thru the ages has been to destroy certain small invaders of human homes, such as mice, and incidentally to warm the human heart by its musical purr. Notwithstanding its unimproved nature, it is generally regarded as a desirable ornament of the human fireside.

The cat and dog are the only flesh-eating animals domesticated by man. The cheetah, a kind of leopard, is sometimes used in hunting, but not very successfully. The Romans domesticated the weasel.

All other domesticated animals, besides the dog and cat, are either hoofed animals, birds, fishes, or insects.

5. The Horse.

In the long and arduous journey from savagery to civilization, the horse has borne a noble and in-

dispensable part of the labor of this world. Whether in war or in peace, the horse has always been an unfailing aid and friend of man. The warriors of Cortez, on their mail-clad horses, struck terror to the Indians, who had never before seen such splendid beings. The Indians thought that each man was a part of the horse on which he rode, that is, that horse and man were one animal.

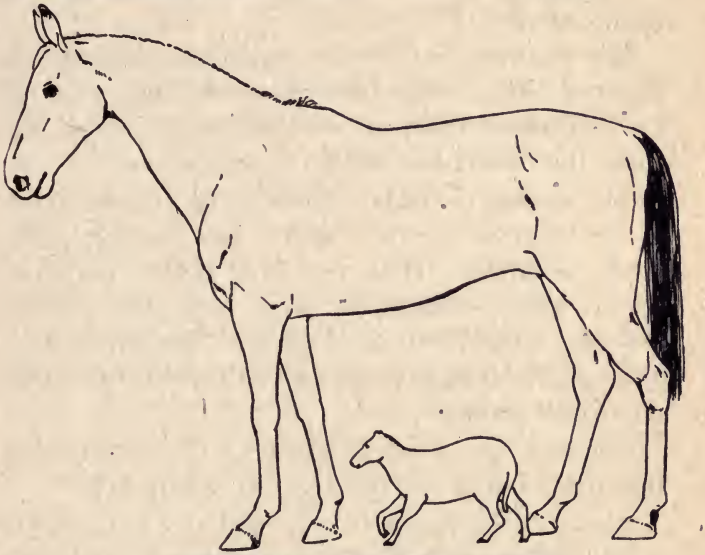
It is commonly supposed that there were horses in America when the Europeans came here. But this is a mistake. The Indians had no horses, not even ponies. The pack animals of the Indians were the women. The llama was used a little in South America as a burden-bearer. The so-called "wild horses," which were rather common some years ago in parts of western North America, were domesticated horses which had lapsed into a semi-wild state.

The horse was probably domesticated in central or southern Asia. There are wild horses still found in some of the more inaccessible regions of central Asia. Wild horses live in small herds and feed on the grasses of the plains. They "run away" when frightened, that is, they stampede in a wild way.

The horse has been traced back in the rocks to an ancestor about the size of the fox with four toes on each front foot and three behind.

The horse walks on the last segment of its big finger—on the *nail* of its big finger. The hoof of

the horse is the best contrivance of its kind yet produced by nature. It is a modified nail, or claw. The horse-shoe was invented by the Greeks or Romans about 400 A. D.



THE HORSE AND ONE OF ITS ANCESTORS

Shetland ponies are natives of the Shetland Islands. They are probably degenerates, owing to the unfavorable conditions on these small, rocky, storm-swept islands.

The forelock of the horse is modern. Wild horses do not have it, and no prehistoric picture of the horse shows a forelock, while every type of existing horse has one. It is a new feature which has been developed during domestication, like the bark of the dog.

6. The Donkey and the Mule.

The donkey is a cousin of the horse. It belongs to the Horse Family. The close relationship of the donkey and the horse is shown by their ability to interbreed.

The donkey is a very unplastic animal. It changes little. The domesticated donkey is not very different from its wild ancestors, which still roam the desert-like plains of central Asia.

The donkey is today out-of-date in most parts of the civilized world. But a few centuries ago it was common. It is now used chiefly in places where wheels cannot go. It is enduring, patient, and sure-footed, but slow. It is a "back number," and will, in time, probably join the buffalo and the American Indian.

The *mule* is a cross produced by the interbreeding of the horse and donkey. It is infertile.

The mule combines in a remarkable manner the good qualities of both of its parents—the patience, endurance, and sure-footedness of the donkey, and the power, size, and activity of the horse.

The mule is especially adapted to service in which the hardships are too great for the horse, and in regions of great heat. It is used little in England and northern Europe and northern United States. It is a common burden-bearer in Spain, southern United States, France, and South America. It was introduced on southern plantations by Washington.

The mule is the offspring of the male donkey and the female horse. It has the voice of its father. It brays like the donkey.

The offspring of the female donkey and the male horse is a very different animal from the mule. It is called the *Hinney* or *Jennet*. It neighs like the horse, never brays like the donkey or mule, and is more like the horse in general build. It is smaller than the mule. It is found to some extent in Spain and elsewhere.

7. Cattle.

There are four principal species of wild cattle in the world, inhabitating respectively North America, Europe, Southern Africa, and Southern Asia. They all belong to the genus *Bos*.

The American wild cattle were called buffaloes, or bisons. They once lived in vast herds from Maine to the Rocky Mountains, but now exist only in park preserves or in the domesticated state.

The European bison (aurochs) was once plentiful, but only a few survive at the present time in Russian preserves.

The Asiatic species of wild cattle has long been domesticated in India. It is the "water buffalo" of the Philippines. It is still found wild in the jungle.

The African or Cape buffalo has never been domesticated. It is a savage animal—large, powerful, and fearless. It has horns like bayonets. It is more feared by the natives than the lion.

The ancestor of the domesticated ox is not well known. But it is generally believed to be the European bison (aurochs). It is probable that man hunted cattle as wild animals for a long time before he domesticated them.

The American bison loves the grassy plains; the European, the forest; while the Asiatic and African species haunt the swamps and waters. The domesticated ox, therefore, was originally a forest animal; and it is still rather fond of roaming in the woods.

"BAYONET OF THE WILD OX"

The ox was formerly used extensively as a draft animal. But at the present time cattle are domesticated chiefly for their milk and flesh. The horse might be developed into a milk-producing animal, if the time should come when man should cease to be a flesh-eating animal.

Mulies are a hornless breed of cattle that have been developed by man. Wild cattle need horns.

Horns are their weapons of defense. But weapons of defense are useless in human pastures and barns, where no enemies exist.

8. Sheep and Goats.

Sheep and goats are mountaineers. They are found in most continents, usually in high, inaccessible mountain regions. They are inhabitants of the sky. They have been driven up into these regions of the sky by the murderous mouths of the wolves and bears. Up in this world of crags

"CHILDREN OF THE SKY"

and cold they can leap from rock to rock and live where the wolf and bear cannot come.

The wild ancestors of domesticated sheep and goats were not Americans, but Asiatics. Asia was the cradle of man and of human civilization. It was in Asia that man first acquired the intelligence to domesticate his fellow beings. And this fact accounts for the long list of domesticated animals hailing from Asia. In Asia, man for a long time carried on exclusively the domesticating business.

Most breeds of domesticated sheep have been developed during the last few hundred years.

The goat is an animal which has been developed in the hard conditions of high mountains. That is where it was manufactured. Its ancestors lived on almost anything they could pick up. This fact accounts for the ability of the domesticated goat to subsist on nearly anything it can find. The goat is a product of the barren peaks.

Sheep and goats have never been selected for their intelligence, but for their hair and milk. Hence they have remained at a low stage of mentality. While domesticated sheep have finer fleeces, they probably have poorer brains, than their wild ancestors.

9. Swine.

The domesticated pig is a descendant of the wild boar of Europe, Asia Minor, and North Africa. It readily returns to the wild state. So-called "wild pigs" are found in many lands and on many of the islands of the world. They are pigs that have escaped from domestication.

Wild hogs live in small droves, and are very loyal to each other. You might think to see hogs eat that they have very little regard for each other —they are so indelicate and selfish and self-centered. But you let one of them get into trouble and send out the alarm-squeal, and the whole pack will fly to its defense with bristles up and uttering the most terrifying war-whoops. They will risk

their very lives to help each other in distress. Wild hogs live largely on roots, which they dig with their short, powerful nose, or snout.

The domesticated swine of China and the East have probably been derived from the wild boar of India, a different species from the European wild boar.

The ears of wild hogs stand up, like the ears of all other wild animals, except the elephant. The wilted ear is a product of domestication.

10. The Reindeer.

The word *reindeer* is not formed from the English words *rein* and *deer*. "Reindeer" means "pasture deer." The word is derived from the word *deer* and the word *rein,* a Lapp word meaning "pasturage."

The reindeer inhabits all three of the continents of the northern hemisphere. The American reindeer, which differs slightly from the reindeer of the eastern hemisphere, is known as the caribou.

The reindeer is domesticated by the Siberians and Lapdlanders, to whom it gives milk, flesh, and draft service. A prosperous herd of reindeer has of late years been brought over by the United States government and established in Alaska. The reindeer can attain a speed of 10 miles an hour, 100 miles a day, hitched to a sledge.

In summer the reindeer lives on the twigs of trees, especially of the birch and willow. In winter it feeds on the so-called "reindeer moss," a

lichen growing plentifully in arctic and sub-arctic regions.

11. The Camel.

The camel is a desert animal. It lives in the vast wastes of northern Africa and central and western Asia. It is no longer found wild. It is the chief burden-bearer of the deserts of Africa and Asia.

There are two chief kinds of camels—the one-humped or Arabian camel, and the two-humped or Bactrian camel. The one-humped camel is often called the dromedary, and is used largely for riding. It is found in Northern Africa and Arabia. The two-humped camel is an Asiatic, ranging from the Black Sea eastward thru Siberia, Thibet, and China. There are, in fact, almost as many kinds of camels as there are of horses—some of them adapted to the burning sands of the tropics, others to the snows of Siberia. There is a breed of racing camels that is very fleet of foot.

The camel is a wonderful being. It is highly adapted to its desert world. No other living animal could take its place.

Its toes are padded to keep it from sinking into the sea of sand over which it moves. That is one adaptation.

It has four stomachs, one of which is modified into folds, or "bottles," for storing water. That is another adaptation.

The hump on its back is a store of fat—a sort of commissary department, or pantry, from which

it obtains its nourishment during its enforced fasts while on its marches across the burning plains. Many people believe that the camel's backbone is curved upward in the middle. This is not true. The backbone of the camel is straight, like that of the cow or horse. The "hump" is merely a store of fat which it carries on its back to give it sustenance when it can't get food to eat. This "hump" shrivels or enlarges according to

"THE CAMEL'S BACKBONE IS STRAIGHT"

the scarcity or plentifulness of food. There are certain kinds of sheep that store their extra fat in their tails.

The camel has great endurance. It can amble over the yielding sands with 200 pounds on its back at a rate of 5 or 6 miles an hour for 15 hours out of the 24. It can keep this up for a week without water, and without anything to eat but thorns and cactuses and a ball of barley meal once a day. The camel can get along without eating and drinking because it carries its food on its back and its drink in one of its stomachs. The camel is not pretty, but very wonderful.

The camel is like the donkey, it never changes. It has been used from time immemorial, but is still only partially domesticated. It has the pe-

culiar habit of expressing anger or disgust by "spitting" at its offender. The camel kneels to receive its load. And while the load is being put on its back, it does a good deal of groaning and complaining. If the load is too heavy, it will refuse to rise.

The llama is a South-American sheep-camel that is used as a pack animal to some extent. It exists only in the domesticated state.

The alpaca is a cousin of the llama. Its hair is made into the well-known alpaca of commerce. It was domesticated by the Indians. Alpaca cloth has been found in the tombs of the ancient Peruvians. The alpaca lives in herds in a half-wild state in the high Andes.

12. The Elephant.

There are two species of elephants—*Elephas africanus* of Africa and *Elephas indicus* of Asia.

The African elephant has never been domesticated, except by the ancient Carthaginians. It has large ears, tusks in both sexes, a convex forehead, and a fierce disposition.

Elephas indicus has long been domesticated. It has a concave forehead, moderate sized ears, and tusks in the male only.

The elephant has always been a favorite of captains and princes and other vain beings who desire to add to their own appearance the magnificence of this splendid colossus.

The elephant very seldom breeds in captivity,

and recruits must be obtained by fresh captures from the jungle. They are taken by the use of tame elephants. They are driven into stockades and fastened and kept there till hunger and fatigue overcome them.

The elephant is used in India to handle timbers. It uses its proboscis, or trunk, which is an exaggerated nose. The proboscis is a wonderfully adaptive organ. It can be used to handle sawlogs or to pick up a pin.

Elephants seldom lie down. They sleep standing up. Cases have been known where elephants have remained standing even after they were dead.

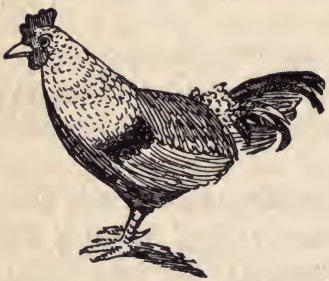
There is no animal domesticated by man that is in its natural disposition so well adapted for domestication as the elephant. It has taken thousands of years to make the dog what it is. But the elephant can be taken right out of the jungle and in a few months it will undergo all the changes necessary to make it an obedient, intelligent, and affectionate servant. Elephants are intelligent animals, with good memories and strong feelings of affection and revenge. They remember kindness and injuries a long time.

Elephants were formerly found in every continent, except Australia. The *mammoth* was the European elephant, and the *mastodon* lived in both North and South America. These animals disappeared from the earth about the time of the appearance of the human species.

The earliest elephants so far known lived in Egypt in the Eocene age of geology. They had no trunk, but a long, prehensile nose. Their tusks were short, like bear's tusks. They were about the size of ponies.

13. Domesticated Birds.

The scientific name for the common domesticated fowl, or chicken, is *Gallus domesticus.* The



"THE JUNGLE-FOWL"
(Male)

name means the "domesticated fowl." The chicken was first domesticated in the Indian region of Asia, where man first came to domesticating consciousness. Its ancestor is believed to be the *jungle-fowl,* still wild in the jungles of India.

The jungle-fowl is dark-red in color, roosts in low trees, and nests on the ground. The males are great fighters, and sing to the sunrise as their descendants do the world over today. The game-cock, with its reddish color, slim, wiry body, and fighting nature, resembles more closely the wild ancestral form than any other domesticated variety, that is, it is more nearly in the "savage" state than other varieties.

The *peafowl* is also from southern Asia, where it is still found wild. The tame bird is not very different from the wild. The peafowl is domesticated for its splendid tail feathers. It is a bird of little sympathy, and likes to be alone.

The *guinea-hen* is from Africa. It is not thoroughly domesticated, and insists on leading a half-wild life yet. It is not found in domestication much, except in the southern United States.

The *turkey* is an American bird. It was hunted by the Indians with their bows and arrows. It was easily domesticated because of its feeble flight and its instinct to live in the same locality. The turkey was domesticated by the Indians. It was called the *turkey* by the English, because when it was first taken to England it was mistakenly supposed to have come from Turkey.

The *ostrich* is from Africa. It is a desert bird. It has only recently been domesticated. It is domesticated for its unrivalled plumes. These plumes are the tail and wing feathers. They are much more beautiful and humane articles of decoration than the feathers of song-birds. The plumes of the ostrich are plucked out or clipped. There are extensive ostrich farms in South Africa and Southern California. The ostrich is the only domesticated bird that does not fly in the wild state.

The *goose* is a descendant of the Canada wild goose, a bird found in all parts of the northern hemisphere. It is a gray bird. It haunts the

swamps and water-sides, living and rearing its young among the reeds and grasses. The tame goose retains much of its wild nature and many of its wild ways of acting. It is domesticated primarily for its feathers.

The domesticated *duck* is a Mallard. The wild duck has a strong and peculiarly beautiful flight. It summers in Greenland, Iceland, Lapland, and Siberia, and winters in India, Egypt, and the Isthmian regions of America.

The common domesticated *swan* is from the mute swan of eastern Europe and western Asia. It is spotless white, with a red bill and a black knob on the end of the bill.

The whistling swan inhabits Iceland, Lapland, and northern Russia. It has a coiled windpipe, and produces whistling or trumpeting tones. It goes to the tropics in winter.

The swans of the northern hemisphere are all white, while those of the southern hemisphere are more or less black, the Australian swan being jet black. The black swan for a long time existed only in rumor and vague report, and was generally supposed to be an impossibility. It is now almost exterminated in the wild state, but is extensively domesticated in Australia.

The *canary bird* is from the Canary Islands, where it is found wild. It is a common house-bird all over the world. The goldfinch and summer warbler are often by ignorant people called "wild

canaries." There are no wild canaries outside of their native islands.

Pigeons have been domesticated three or four thousand years. There are now perhaps 200 different varieties of the domesticated pigeon—carriers, tumblers, trumpeters, pouters, fantails, etc. All varieties of the domesticated pigeon have come

"THE ROCK-DOVE"

from the rock-dove of Europe. Pigeons mate for life. They are the only monogamous domesticated birds. They feed their young on "pigeon's milk," a liquid made from half-digested grain in the parental crop. The rock-dove is bluish in color, with two black bars on its wings. It is called the "rock-dove" because it makes its home among rocks.

14. Domesticated Insects.

There are over a half-million species of insects already known to science. The insects form the big branch of the animal kingdom. Only three or four species out of this enormous array have been domesticated by man. Insects are too small and weak for burden-bearers, and they are not, as a rule, palatable to man.

The *honey-bee* was probably the first domesti-

cated insect. Its home is in the Old World. It was not found originally in America. The wild bees of America are the swarms of domesticated bees that have escaped to the wild state. The honey-bee is now found domesticated in all lands where flowers bloom and where the honey-making season is long enough to enable it to store sufficient sweets to last thru the winter.

Bees live on "bread" and honey. The honey is the nectar which flowers secrete and present to the bee as compensation for the bee's services in bringing about cross-fertilization. The honey is sucked up and swallowed by the bee and carried home in its crop, and afterwards regurgitated into the honey cells. The "bread" of the bee is the pollen, which it gathers and carries home in the hairy baskets of its hind legs. Some flowers, as the rose, do not produce nectar at all, only pollen. The fragrance of such flowers is in the petals or leaves. In the eglantine (sweetbrier) the leaves are more fragrant than the flowers. Wild bees make their homes in hollow trees and rock cavities.

Bees do not store honey in the tropics much, because of the abundance of flowers the year round.

The social organization of the honey-bee is of a very high order, higher than that of any vertebrate animal, not even excepting man.

The "silk-worm" is not a worm at all, but a *baby moth.*

The *silk-moth* has long been domesticated. It is a native of the highlands of China. And the Chinese domesticated it first. It is domesticated for the silk spun by the larva (caterpillar) when it passes into the pupa stage of development. The silk is the couch or cradle for the insect during its pupal sleep.

The silk is a liquid in the glands of the caterpillar, and hardens on exposure to the air, like the silk of the spider. The glands open by a common duct near the mouth of the larva.

China, Japan, and France are the great silk-producing countries of the earth. As many as ten million human beings are engaged in the silk industry.

The domesticated silk-moth has been in captivity so long that it has become flightless, like the domesticated birds. The larva, or caterpillar, of the silk-moth feeds on the leaves of the mulberry.

The *cochineal insect* is a little red bug inhabiting Mexico. It lives naturally on the cactus. The dye (cochineal) is made from the brilliant bodies of these insects. The bodies are dried and ground up. Cochineal was used by the Indians as a dye before the coming of the Spaniards. It was long supposed by Europeans to be a seed. The bug has been transplanted to Spain and the Canaries, and a large part of the world's supply of cochineal now comes from these lands.

15. Summary and Conclusion.

Sponges and oysters are now "farmed" in many

parts of the world much as horses and wheat are farmed in other parts, and may in a sense be regarded as domesticated animals. The sponge and oyster "farms" are on the sea-floors.

Leaving out sponges and oysters and the three insects which have just been mentioned, all of the animals that man has associated with himself as domesticated animals belong to the back-boned crowd, that is, are *vertebrates.* And if the gold-fish and turtle are omitted, only the *warm-blooded birds and mammals* are represented among human domestics. By far the greatest number and most important of these belong to the order of *hoofed animals,* or *ungulates.* Excepting the cat and dog, all are primarily *vegetable feeders.* All of the great burden-bearing races are strict vegetarians.

By far the largest number of domesticated animals are of Asiatic origin: the horse, donkey, dog, mule, water-buffalo, sheep, goat, camel, elephant, honey-bee, silk-moth, chicken, peafowl, goose, duck, swan, and gold-fish. The ox, pigeon, reindeer, and pig are from Europe. America furnished the turkey, alpaca, llama, guinea-pig, and cochineal bug; while the cat, canary, and guinea-hen are from Africa. The exceedingly large contribution from Asia is not due to the large size of this continent nor to the greater variety of animal life there, but to the fact that Asia was man's native continent, the continent on which the human species probably originated, the continent, at any

rate, on which mankind first arrived at the domesticating stage of development.

There are something like 100 species of animals and 1,000 species of plants today represented in human commerce.

These races of beings which man has associated with himself are *living beings*. They eat and drink and breathe, they suffer and enjoy, reproduce their kind and love their young, much as human beings do. They have been taken from their natural surroundings and forced to adopt ways of living that are often cruel, or even horrible. There is nothing much more certain than that men and women of the far future will recognize their kinship with these races, and will treat them in an entirely different way from what we do. As Darwin says, "Sympathy for the lower animals is one of the noblest virtues with which man is endowed."

PART II.

Wild Survivals in Domesticated Animals

1. The Struggle for Existence.

As a rule, animals are adapted to their surroundings. They have the form and architecture which they need to enable them to exist. They *fit* their surroundings, as if they had been whittled out by some expert to suit the various places in which they live. They have just the organs they need, arranged in just the way they should be, to carry on life successfully.

It used to be supposed that this wonderful adaptation of living beings to their surroundings was the result of the skill and benevolence of the Creator. Animals were all supposed to have existed from the beginning, just as we find them today. It is now known that the perfect adaptations of animals to their surroundings is the result of a world-wide struggle to live and a consequent survival of the fittest to survive. In the struggle for life most animals perish. Only the few survive. These few are the ones *best fitted* to their surroundings. *The survival of the fittest* which has gone on for millions of years has resulted in the production of species with natures and bodies exceedingly well fitted to the world in which they live.

More beings are born than can live on the earth. There is an over-production of life. There is not enough food and air and room to go round. It is estimated that a single pair of house-sparrows would, if none should die, produce enough sparrows to cover the state of Indiana in 20 years. The lobster lays 10,000 eggs in a season, and the oyster 2,000,000. A female white ant, when adult, does nothing but lie in a cell and lay eggs. She lays 80,000 eggs a day for several months. The natural increase of a single pair of gypsy moths would destroy all the plants of the United States in eight years. The eel produces eggs but once in a life-time, but it produces the almost incredible number of from 5 to 20 millions, depending on the size of the fish. Certain low forms of animal life reproduce so rapidly that, if they should all survive, their offspring would in a few days fill the seas. If every egg of the codfish should produce an adult, a single pair in 25 years would produce a mass of fish as large as the earth.

One result of this overproduction of animal life is a world-wide struggle for existence. The earth is a battlefield. How it may be on other spheres, we do not know. But on the particular globe on which we have been allotted to come into existence life is one mighty tragedy. Species are pushing and crowding and murdering each other in the effort to live. And this pushing and crowding and exterminating has gone on ever since the beginning of life on the earth millions of years ago.

There are about a million species of animals known to science at the present time, that is, there are about a million that are known and named. And there are probably a million more that are not yet catalogued. And it is estimated that from 20 to 100 times as many species of animals have lived and perished entirely from the earth as today survive—20 to 100 times as many *species,* remember, not individuals. The rock masses over which we walk every day are vast cemeteries in which lie all that is left of immeasurable billions who once lived, breathed, and had their existence as we do now. These facts give a little idea of the nature and extent of the struggle which has gone on here on the earth, and whose story lies locked forever in the fossil-bearing rocks.

2. Vestigial Organs.

Vestigial means "remnant," or "trace;" and *vestigial organs* means "remnant organs," organs which have gone out of use and which are in the act of passing away as a result.

In the struggle for life species are continually displacing each other, continually driving each other out of one set of surroundings into another set. When a species is driven out of one set of surroundings to which it is fitted into another set different from the first, it is very likely to have some organs that are left over and not needed in the new environment. On the other hand, it will probably need some organs which it does not have.

Now, it is possible for it to make over an organ which it does not need into one that it does need, somewhat as our mothers used to transform a coat which we did not need into a waistcoat or a pair of trousers which we did need.

The wings of birds were formed in this way out of the fore legs of lizards. Birds have been developed from lizard-like reptiles. And in the transformation of the scaly lizard into the feathered bird the fore legs of the lizard went to form the bird's wings. The bird's wing has the same general architecture as the lizard's fore leg; humerus, ulna and radius, carpal bones, and three series of metacarpal bones. Two of the five toes of the lizard have been lost in the bird's wing.

But the transformation of superfluous organs into useful organs is the exception. As a rule, organs that are not needed go to waste.

Now, it is a law that when organs are not used they tend to disappear. Organs that do nothing are not nourished, and hence tend to fade away. Then, too, organs that are not used are not emphasized by Natural Selection. And if their uselessness continues long enough, they will not only shrivel and decay, but will finally pass out of existence entirely. There are almost numberless examples of extinction of this kind known to biologists. The disappearance of legs in snakes is an instance. Snakes have come from lizards, and originally walked on four legs. But in the struggle for life they have found it of advantage to

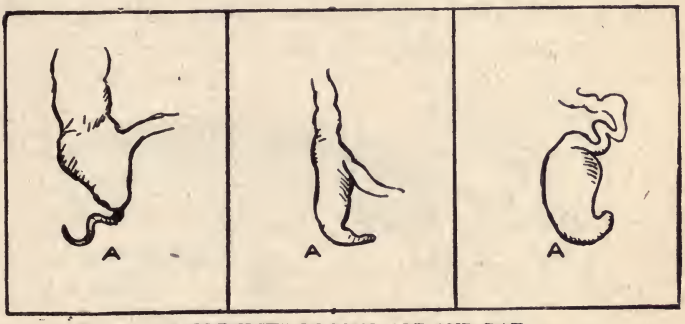
adopt a wriggling or creeping style of locomotion. The legs went out of use as a result. And this change in the life of these reptiles took place so long ago that in all but a few cases every vestige of limbs has disappeared.

But there are many instances in the animal kingdom where discarded organs still survive in a dwindling and drying-up condition. These organs, in the ancestors of the animals now possessing them, were fully developed and useful, but, because of changes in habits or conditions of living, they are now of no further use, and are gradually dying out. Such organs are called Vestigial Organs.

Vestigial organs are simply organs without a job. They are organs which haven't anything to do, and which are suffering the inevitable consequences of long idleness. The amount of degeneration which any organ has undergone depends on the length of time which has elapsed since it became useless. Vestigial organs are departments which have gone out of use, but which have not yet gone out of existence.

There are hundreds of vestigial organs in the bodies of men and other animals. All the higher species of animals have them. One of the best known examples is the vermiform appendix in the human body—the useless organ which is removed in cases of appendicitis. This organ in many of the lower animals is a regular part of the digestive system. Food enters it, and it secretes

chemicals and absorbs nourishment into the blood, like the stomach and intestines. In the rat the "appendix" is as large as the stomach, and forms a sort of second stomach, where the food pauses and undergoes special treatment. But in man, for some reason (maybe because of his adoption of the erect position), this organ is of no use. Food never enters it, except by accident; and it is so



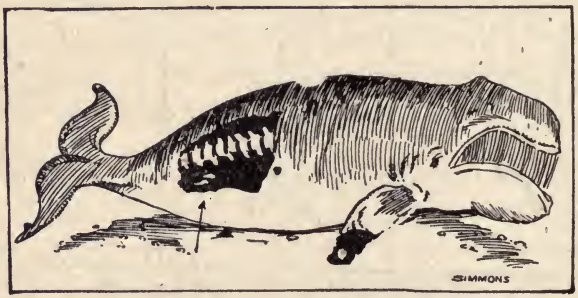
"APPENDIX" IN MAN, APE AND RAT

weak and ill-nourished that it is the seat of frequent disease. It is destined in time to pass away entirely, like the legs of snakes and the claws on the wings of birds.

Other instances in man are the ear muscles, the tail and tail muscles, the so-called "wisdom teeth," and the general hairy covering of the body. The eyes in cave fishes and in moles are vestigial, because these animals live in darkness where eyes are useless. They have eyes, but are blind. The eyes are mere remnants. Horns in domesticated cattle are vestigial. In wild cattle horns are weapons of defense. And in a world of

wolves and bears wild cattle wouldn't last long without these bayonets on their heads. But in human pastures cattle have no use for bayonets. They have no enemies. And men often cut these useless parts off.

The hind legs of whales are vestigial. The whale was once a land animal and walked on four legs. But in the struggle for life it has been pushed off into the sea, and taken on a fish-like



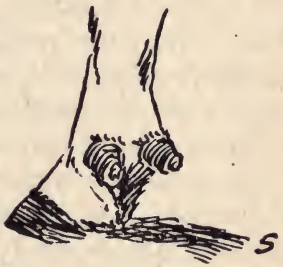
"RUINS OF HIND LIMBS IN THE WHALE"

shape in adaptation to its surroundings. It has its front legs yet, but its hind legs have almost disappeared. There are only the ruins left. They are the two small bones that are seen hanging down from the backbone of museum specimens in the place where hind limbs would be naturally if it had any.

Many mammals have vestigial toes. The cow has two just back of the two useful toes. So has the sheep, pig, and deer. One toe on the dog's front foot is vestigial, never touching the ground. The original mammals (the species from which all

the different kinds of mammals have come) had five toes on each foot. Many mammals still retain this five-fingered style of foot. Man does. So do the monkey and the elephant. But many spe-

"UNUSED TOES OF THE COW"



cies have lost one or more toes from each foot. The hippopotamus has lost one toe from each foot and has four left. The rhinoceros has lost two, and has three left. A large number of species, like the cow, have lost three, and have two left. And the horse has lost four and has only one left. The horse walks on its big finger. In all of these

species there still exist remnants of these lost toes.

The "glass-snake" looks very much like a cousin of the common garter snake. But it is not a snake at all. It is a *lizard.* And it is so classed in all the books.

Snakes are limbless lizards. When we find a lizard without legs, we call it a snake. And when we find a snake with legs, we call it a lizard. The "glass-snake" is a lizard because it has four legs. But its legs are not visible. They are internal. The "glass-snake" is a lizard on the way to becoming a snake. We catch it in the act. It is a connecting link between these two orders of reptiles. The legs have gone out of use, but not long enough ago for them to have passed out of existence. They are vestigial. In the bodies of some snakes, as the pythons and constrictors, there are little clawed remnants of hind limbs.

Snakes have only one lung. They have come from ancestors with two lungs, but their body is so narrow that there is not room for two lungs side by side, so one lung has been abandoned, and the other one has become larger by extending out along the body. The abandoned lung still exists, but it is a mere unused remnant.

The right ovary of birds has become atrophied in a similar way, all of the eggs of birds being produced by the left ovary. The ovary is the egg-producing organ of animals. In nearly all animals there are two ovaries, just as there are two kid-

neys and two lungs. But in birds, for some reason, the right ovary does nothing, and has shriveled to a mere remnant.

In man and most other vertebrate animals there are two bones in the leg from the knee to the ankle —the *tibia* and the *fibula*. In birds and in some mammals there is but one bone (tibia), the fibula being represented by a mere splint extending down part way from the knee. You have probably seen this splint without recognizing it in the leg of the chicken. The big bone in the chicken's leg is the tibia; the splint is the vestigial fibula.

Insects ordinarily have two pairs of wings. But flies have only one pair, the hind pair being represented by a couple of knobs. In other species of insects the front wings are rudimentary. The male cockroach has two pairs of wings, and occasionally uses them in flying. But the female is flightless, the wings being rudimentary. The ovaries are vestigial in the working class of bees and ants. In the cow there are two teats that are rudimentary and four that produce milk. The rudimentary teats occasionally yield milk. In one breed of Chinese sheep the ears are mere vestiges, and in another breed the tail has dwindled to "a little button smothered in fat." In tailless dogs and cats there is a rudimentary stump. In some breeds of chickens the comb and wattles are rudimentary; and in the Cochin-China the spur has nearly disappeared. In the hornless breeds of sheep and cattle tiny knobs often grow out where

horns would naturally be; these are sometimes shed and grow again.

In many plants the petals and other parts of the flower are rudimentary. The purpose of the petals is to advertise the flower to insects by bright displays of color. In some flowers this is done by the stamens, while in others (the poinsettia, for instance) this advertising business has been taken over by the leaves adjacent to the flower. In the dandelion all of the outer florets have vestigial pistils. In some varieties of the cultivated gourd, which no longer lead the climbing life, the tendrils are rudimentary.

Parasitic animals and plants are commonly much degenerated, having abandoned entirely many of the organs which they had when they led a free and independent existence. Such organisms are, as a result, nearly always rich in ruins. The narwhal is a kind of whale that lives in the far north. It has only two teeth. They grow straight out in front. One of them grows to be six or eight feet long and is used in spearing its enemies and in breaking holes in the ice. The other one is vestigial, never projecting beyond the skull. In the pouched mice of Australia, the young are no longer carried in the pouch and the pouch has degenerated to a mere fold of skin on the abdomen.

The so-called "wisdom teeth" in man are teeth which are in the act of passing out of existence. They appear late in life and in many persons do

not appear at all. There is a remnant of a "third eye-lid" in many animals at the inner corner of the eye. Man has this remnant, in common with many other animals. In birds, turtles, and other animals this third lid of the eye is in full use. It is the thin membrance that is pulled over the eye, often when the two ordinary eye-lids are open. In man and the man-like apes, the tail is vestigial, consisting of only three or four vertebrae much grown together. Before birth in all of these animals the tail is long and has muscles for wagging it. The bird's tail is also a mere remnant of what it once was. The oldest birds found fossil in the rocks had long tails composed of twenty vertebrae.

Vestigial structures are found everywhere. They are by-products of all organic evolution. There are vestigial *instincts* in the minds of men and other animals, and vestigial parts in all human laws, customs, and institutions. Our political, industrial, religious, educational, and legal institutions are full of vestigial features. This is a big subject. And if you will only get the *key* I am trying to give to you, you will be able to understand many things that are now mysteries to you.

3. Vestigial Instincts.

Useless *instincts* survive in the *minds* of men and other animals for the same reason exactly as useless *organs* survive in their *bodies*. Living beings are, as a rule, fitted to their surroundings,

not only in form and structure, but also in their natures and ways of acting. Animals have not only the organs and parts in their bodies which they need in order to enable them to live, but they have also the *instincts* to drive them to do the things they need to do in order to enable them to live successfully. Every being has a certain set of urges in its nature pushing it to do things, and these urges are generally useful. But when a species in the struggle for life is driven out of one set of surroundings into another set different from the first, it is likely to have some instincts and ways of acting that are not needed in the new environment. These useless instincts are called Vestigial Instincts.

Vestigial instincts are merely instincts which have been thrown out of employment by changes in conditions imposed by the struggle for life. Men and other animals have many ways of acting that are useless, just as they have many organs that are useless. These ways of acting survive wholly thru momentum acquired in times gone by. Like the vermiform appendix and the eyes of cave fishes, they have gone out of use, but have not yet gone out of existence.

Domesticated animals have been subjected to very great changes in surroundings, and they have, for this reason, an unusually large number of instincts that are useless. These instincts have been imported. They can be understood only by reference to the wild conditions in the midst of

which they evolved. They are survivals, which the centuries of human selection have not been able to iron out. In the wild life among the forests, mountains, and prairies, surrounded by enemies and pursued by wolfish wants, these instincts were useful to the individual and the species. But in the artificial conditions created by man, they are not only useless, but *often even injurious.*

This lesson treats chiefly of the vestigial instincts of domesticated animals. The vestigial instincts of *man* will be taken up in lessons four and five.

4. Wild Survivals in Dogs.

I will mention four vestigial instincts found in dogs, namely, the hunting instinct, the "sheep killing" instinct, the instinct to turn round and round before lying down, and the howling instinct.

Dogs hunt, even when filled with food. Take the gentlest collie for a walk. It will not follow behind, nor walk by your side. It will be nosing about here and there and scouring the thickets and bank-sides to see what it can find. And if it finds something it will run it down if possible and take its life. A lamb or a calf will not do this.

The dog is a made-over wolf. Its ancestors lived on rabbits, birds, sheep, and other animals, which they hunted down and slew with their teeth. But the dog eats out of a bowl. The dog hunts because its ancestors were hunters. It hunts in order to exercise an instinct which is unprovided for in its

peaceful life among men. The hunting instinct in dogs is an instinct which has gone out of use (except in dogs used for hunting) but which has not yet gone out of existence.

The collie is the dog used in herding and handling sheep. The collie has been so changed since its association with man that it ordinarily defends and loves the sheep in its charge. But once in a while this gentle being is liable to go on a spree of "sheep killing." It does not eat its victims nor drink their blood. It simply cuts the big blood vessels of the neck, and leaves its victim to bleed to death. The collie does not kill because it is hungry. It kills for exercise. It kills because the wheels of its nature have gone round in a certain way so long that it can't stop them. The impulse to kill, so strong in the wolf, has become weak in the collie from long disuse. But occasionally this old instinct mounts to the high places in the nature of this canine, and for the time being it is a wolf again.

If you will watch a dog when it starts to lie down, you will see it go thru a performance which has survived from the time when, as a wild creature, it used to make its bed among the grasses. The dog does not lie right down without any preliminaries. It turns round one or more times in the place where it is going to lie before actually lying down. Darwin says he has seen a dog turn round twenty times before finally settling down in a reclining position. Darwin thinks

that this performance is a survival of the old bed-making process of the wolf. It is the old process of tramping down the grass to make a place to lie in. This performance was useful when the dog made its bed on the prairies, but it is a mere waste of time to a dog lying down on a rug or a floor.

Dogs *bark* as a general thing. But occasionally they express themselves in a strange, hair-raising *howl*. The "bark" is a product of domestication. Wolves howl. A wolf will get up on a hill and give out a long, loud howl, and another, miles away, will answer. They find each other in this way. And once in a while the dog will drop into this old method of signalling. I used to hear this howl years ago on the prairies of Kansas, when the coyotes called from the hills at night. Nell was our house-dog and friend. And ordinarily her voice was as soft as rippling waters. But when she heard the coyotes at night, she would stop barking sometimes and express herself in a loud, prolonged howl. It was so unearthly and so entirely different from her usual utterances that it always seemed surprising that she could ever be the author of it. *It was the call of the wild.* Long ago she and her associates were accustomed to megaphone to each other in this way. And her machinery, altho weathered by ages of domestication, had not forgotten the ways of the old, wild, long-vanished life.

Superstitious people sometimes account for these howlings of the dog by supposing that they

foretell death or some other calamity to the household. People who account for this instinct in this way are themselves showing a survival of the past —a survival of pre-scientific times when men everywhere interpreted things by signs and omens. A few hundred years ago there was no such thing

"THE CALL OF THE WILD"

as chemistry or physics or science generally, such as we know today. Such a thing as *natural law* operating everywhere was not dreamed of. In those times men accounted for things by signs and dreams and omens. And a good deal of this old, pre-scientific way of thinking still survives in all higher peoples.

5. Wild Survivals in Cats.

The domesticated cat is from the wild cat. And, if you will watch cats about your homes, you will

see many things that go back to the old, wild life which they have left behind.

Dogs *chase* their prey. This is true of the whole Dog Family—wolves, foxes, and jackals, as well as domesticated dogs. The members of the Cat Family get their prey in a different way. They slip up on their prey until they are near enough, and then they leap on it. All the Cats do this—lions, tigers, leopards, wild cats, and domesticated cats. The Cats hunt by stealth; the Dogs by fleetness largely.

But the domesticated cat eats out of a bowl. like the dog. Many of them never have an opportunity to *catch* anything oftener than once a month probably. But the instinct to catch things in the old way still survives in domesticated cats. And often you will see them making opportunities of their own to satisfy the instinct to catch something. They will creep along the ground a little distance, and then leap, as if they were catching something. Maybe it is a grasshopper. Maybe it is a fly. Maybe it is nothing. They are merely giving an old, unexercised instinct an airing.

The practice the cat has of going up to a tree or post and scratching at it for a few moments is probably an exercise which it goes thru with in order to relieve uneasiness in the muscles of its feet and toes. The wild cat climbs trees a good deal, and catches and holds things with its claws. The cat's claws are different from the dog's claws. They are *retractile,* that is, movable. They can be

pulled back into the foot and then extended. These movements are made by muscles which no doubt get uneasy and "tired" from long idleness, just as we get "tired" or uneasy on rainy days sometimes when we are kept indoors all day. When the cat scratches a tree it is exercising muscles which in its ancestors were used daily in hunting

"EXERCISING UNUSED MUSCLES"

and tree climbing, but which are, to some extent, vestigial in domesticated cats.

There is one difference between the psychology of the dog and that of the cat which may be mentioned here.

It is the nature of the dog to become attached to *persons*. When the family moves, the dog moves too. The dog's home is where his master is. The dog will follow a handful of rags wrapped around a beggar, day after day, thru heat and cold and starvation, as cheerfully as he will follow a king. The devotion of the dog to man is one of the divinest things in this world. And there

are few more affecting sights than that of a "lost" dog. The dog wants to *belong* to *somebody.*

The cat becomes attached to *places* more. Its affection and loyalty are lavished on localities. It has a strong homing instinct. And it has a sense which men do not have which guides it almost unerringly back to its home. Cats may be carried away for miles, and carried in such a way that they cannot see anything on the way to guide them in returning, but when they are released they will find their way back in the most surprising manner. Dogs will do this some, too. Cats are almost indifferent to persons, but they cling to their native haunts as they cling to life.

The homing instinct is still more highly developed in the homing pigeons. The homing pigeon has been carried a thousand miles away from home, but the sense of direction is so unerring in these birds and the longing for their home so strong that after a few circles on being released they will start on tireless wings for their native cote.

Wild animals do not rove about the world as they are generally supposed to do. They live for the most part in localities. They learn the ins and outs of a locality from their parents and associates, and are much safer in these familiar surroundings than they would be wandering into new and unknown regions. The homing instinct is useful to all animals that possess it naturally—to

ants and birds as well as to cats. It is *not* useful to a cat that comes into existence in a home that has cats for export.

The dog's ancestors were wanderers much more than the cat's were. And this is one reason for the cat's greater regard for locality. But the dog's great devotion to man comes from its long domestication, and from the fact that it has always been selected for its devotion and intelligence much more than the cat. The dog more than any other animal has been the *companion* of man, while the cat has been kept primarily to hunt mice and rats and other small animals that tend to invade human homes.

6. The Mother Instinct.

Infancy is the time of the greatest mortality in all animals, including man. It is the time when living beings are weakest, and least able to defend themselves against the many enemies that lie in wait for them. Hence, in many species of the higher animals, there has been developed, especially in the females, a strong inclination to care for and defend their young. Those species have survived that have had this instinct for child preservation most highly developed. No species can live long that does not save its young.

The domestic cow *hides* her new-born calf. This is useless in human pastures. But in the danger-filled life of the past, where a hundred hungry mouths awaited every calf that came into the

world, this practice of the mother of retiring to some secret place when she gave birth to young was an exceedingly useful precaution.

Domestic fowls hide their nests for the same reason. And in those fowls like the turkey and the guinea-hen, which have been most recently domesticated, this instinct is much stronger than it is in the more anciently domesticated chickens. Some breeds of chickens don't seem to have much

"THE GOOSE COVERS HER EGGS WHEN SHE LEAVES HER NEST"

of this instinct left. They lay their eggs openly, almost any place where a nest is provided, altho they may prefer to have the nest somewhat secluded. The goose takes the additional precaution of covering her eggs with grass and sticks when she leaves her nest to feed. How absurd it is for a goose to come off her nest right in plain sight, and go to work and cover up her eggs. But the wheels of her nature have gone round in this way so often in the wild life that they can't stop now. They continue to run on after all reasons for their movement have passed away. Sometimes a goose will show a weakening of this

instinct by not actually covering the eggs, but merely throwing a few straws or sticks over, or in the direction of, the eggs, and letting things go at that.

In the wild state the mother rabbit makes her nest out of hair which she pulls from her own body, and she will continue to do this when domesticated, even tho cotton or other nesting material is provided for her.

These mother instincts of the fowl and the cow are useful in a world where eggs and young are hunted, but in human fields and barnyards they are vestigial. They are often more than useless —they may be injurious. For, sometimes, the cow will hide her calf so that the owner can't find it at all, till after it has perished from cold and rain. Domesticated animals are in many ways still adapted to the wild world, and continue to act the same as they would act if they were still living the wild life which they have left. Animals that live in association with man are generally better off if they co-operate with man. But there are a good many instincts in their nature, surviving from their wild life, which cause them to act in opposition to man. As time goes by, these contrary instincts will grow weaker, and will finally pass away entirely. For man tends to select for breeding purposes those best suited to him.

Mother cows, horses, sheep, hogs, and other domestic animals always acquire a strangely fierce nature when young are born to them. They are

disposed to attack anyone or anything that comes too near their young. This protective instinct is strong in the parents of domesticated animals, especially mothers, altho largely in the way and useless, because there was a time in the past when it was indispensable to the species.

7. Mother Love.

Mother love is not a human invention. It has been inherited. It is older than the Rocky Mountains. Mother love in man came from the same source as the backbone in man—from pre-human forms. Mother love among men is the same thing exactly as mother love among birds and quadrupeds. The mother monkey loves her child with almost the same tenderness as the human mother. When a monkey child dies, the mother carries the little corpse around with her for days, refuses to eat, and sits often in silence and grief. Mother birds will risk their very lives for their young. So will mother bears, and lions, and whales, and the females of many other species.

Now, why is it that this instinct to protect the young has been planted so generally in the females, who are commonly the weaker members of the species? Among vertebrate animals, at least, the males are larger and more powerful than the females, and are physically much better fitted to perform this protective function than the females. Why has not nature given the males this work to do? Has nature made a mistake in planting this

instinct in the breasts of those least fitted to have it?

It is commonly said that the human mother loves her child more than the father because the child is a part of the mother's body. This is not true at all. Mother love among men is stronger than father love for the same reason that the mother bird or the mother bear loves her young more than the father. The greater affection in the mother originated in the pre-human forms of life, and the human species simply inherited it.

In the wild times in which this instinct originated *the mother was the only one present at the time young were born and the only one in whom this instinct could be planted.* It was better to plant the instinct in the weaker members of the species than not to plant it at all. If the sex relations of the animal kingdom had always been what they are prevailingly among men today, if there had always been a *family* with one father and one mother in it, there is practically no doubt that the protective instinct would have been developed chiefly in the male in all animals, including man.

Among some fishes the male assumes all the care and anxiety of parenthood. And this is true in at least one or two families of birds. The male ostrich hatches the eggs and looks after the little ones. The greatest enemy of the eggs and young of the stickleback fish is the mother herself. She not only has no affection for them whatever, but would eat every one of them up if she weren't pre-

vented from doing so by the father. In very few species of fishes do the females care anything for either the eggs or young. Among fishes, therefore, the instinct to save the young is not the won-

THE STICKLEBACK FATHER GUARDING HIS NEST

derful "mother instinct" found in the human and other higher species, but the *father* instinct.

Among all animals that mate for life, birds and men alike, parental love is more evenly divided between the two sexes than it is among those races

in which there is no permanent family relation. The regard of parents for their young is a provision of nature for saving the species by saving the recruits of the species. And whether this regard is found in one parent, or in the other, or in both of them, depends on the conditions which surround the species and the conditions which have surrounded its ancestors.

As time passes and *society* assumes more and more the care of the young, it is probable that the love of parents for their own children will grow weaker. Parents will develop a feeling of regard for children as a whole, and will not have that feeling of partiality which they today have so much for their own children. Society is in many ways better fitted to look after its young than are individual parents. Society today carries on the education of the child, providing school houses, teachers, and in some cases even books and meals. All of these things were formerly done by parents themselves, that is, in a "private" rather than in a "public" way. And future times will no doubt see still further advances along these same lines. We live in a changing and growing world. If we could come back to the world a thousand years from now, we wouldn't recognize it. There would be new styles, new languages, new nations, new industries, different forms of education, different social relations, and different ideas generally. We go along with our heads down assuming that things will go on much as they are now. This

will not be true. Most of the things we are used to today will be gone a thousand or two thousand years from now. The present is merely a passing phase of things.

8. Copying the Leader.

Years ago, when we lived on a farm in the country, my father kept sheep. And there was one peculiarity in the sheep psychology that I remember very well.

The sheep were kept in a lot at night and turned out on the prairie during the day. Instead of a gate, the lot had what were called "bars." These were wooden pieces extending across the opening one above another, and were pulled to one side when the sheep went in or out. Sometimes, in their eagerness to get out, the sheep would begin their activities before all the "bars" could be "let down." The sheep nearest the opening would jump over, and the rest would follow. Before many had passed, the remaining "bars," of course, would be taken out of the way. But every sheep in the flock would jump at that particular place in imitation of those in front, even tho the obstacle were no longer there.

This copying instinct is a survival of the past. It originated in different conditions from those in which civilized sheep live.

Sheep are mountaineers. They came from the highlands. In their pre-domestic existence they lived in flocks, each flock being led by a wise old

ram of experience and courage. These flocks were often pursued by wolves and other animals. The sheep escaped, not by hiding or fighting, but by flight. The life of the flock often depended on the skill and faithfulness with which the members of the flock copied their leader. And the practice sheep have of following and imitating their leader was acquired no doubt thru the necessity when pursued of leaping over the same chasms and rocks that their chief and those in front of them leaped over, whether they could see the reason for it or not. Those who did this survived in the struggle for life, and those who did not do it went down or were destroyed.

The copying instinct is, therefore, of great use to a species living as sheep lived in their wild existence, but of no use to them since they have become lowlanders. The instinct to follow the leader exists in all animals that live in flocks and herds. It is useful in the most of them.

At the Chicago "stock yards" they take advantage of this copying instinct of sheep by having a trained ram lead the sheep to the slaughter. The sheep have the nature to follow the ram, and when they arrive at the killing place, the ram steps aside and escapes, to lead another flock a little later. This is an instance where the leader-following instinct in sheep is of use to men but not to sheep. Hogs and cattle do not have this instinct; and they have to be prodded and whipped by men to get them to the killing place.

9. The School of Nature.

Young sheep and goats leap and gambol in their play. I have noticed young goats that were being led along the streets keep up an occasional jumping as they went along, leaping first one way then another, sometimes straight up into the air, as if they were worked by some unseen spring that went off suddenly inside of them. How strange such conduct must have seemed to the pre-Darwinians. But to the evolutionists it is as plain as day.

Play is nature's schooling. It is preparation for a life to come. Young animals, when they play, practice on what they are going to do later on in life. This is true of all animals, including the young of human beings. Lambs and kids run and leap in their play for the same reason that the young of men, dogs, and lions scuffle and fight and chase each other. Whenever there is any chance for it, lambs and kids choose a steep bank or other declivity as their play-place. A bank is a mimic mountain-side.

Lambs and kids are the children of mountaineers. Their natures were formed and fitted for a very different life from the one they now lead. They were educated for life among mountains. The leaping and running of their play originally was the very preparation they needed for the life they would lead when they were older. It developed strength of muscle so they could run fast and leap far, and also gave them the skill to light with

accuracy and to cling to the rocks without slipping. But their education is now out of date. Play in young goats and sheep, like play in human young, is a preparation for a life long left behind. The play of the children of man is preparation for a life of fighting, such as our savage ancestors led; and the play of the children of sheep and goats is preparation for life among mountains and enemies, such as their wild ancestors had. When goats play, they go to school. They take lessons in doing things that they are going to do later on in actual life. But the life conditions of domesticated goats are so different from those of their wild ancestors that their schooling is out of date. They will never use in actual life the lessons they learn in their young years. Goat education, like the education of many other animals, is behind the times.

10. A Child of the Sky.

Goats and sheep are mountaineers. Their ancestors lived in the sky—in those high, peaked places of the world to which they had been driven by the hungry mouths of the lowlands. Domestic goats are mostly lowlanders. And if you will watch them, you will see them doing many things they never would do in the world if they had not been descended from inhabitants of the crags. The tendency of the goat to climb up on lumber piles, haystacks, and the roofs of low buildings is a peculiarity which it brought with it down to the

plain lands from its original home among the pinnacles of the world. A haystack is a mountain peak, from which this child of the sky can view the world. It is a sentinel place.

The ability of the goat to subsist on almost anything it can pick up is also an accomplishment which it developed up there in those bleak and barren altitudes whither it had been driven by the pitiless mouths of the lowlands. It has been up in these deserts of the sky that goats have spent most of their racial existence and laid the foundations of their nervous and muscular systems, that is, there is where they were manufactured.

The goat doesn't eat newspapers and old rags for pastime. It digests them. Paper is made from wood, and rags from cotton fibre, which is chemically similar to wood. An important part of all woody fibre is a substance called *cellulose*. Cellulose is chemically the same as starch. It is also like starch in the fact that when it is digested it changes to sugar. *We* can digest cellulose in a test-tube by pouring sulphuric acid on it. Put sulphuric acid on a piece of newspaper and it will change to sugar. But we can't digest cellulose in our bodies, because we haven't the right chemicals in our digestive fluids. But the goat can. The goat has four stomachs. It is what is called a *ruminant*. It chews its cud. All of the cud-chewing animals have stomachs composed of four compartments. And they are able to include in their

menus many things that animals like man have to omit.

How tame the lowland earth must seem to souls born in the sky. How the children of the peaks, who are compelled to spend their lives on the plains, must long for their native crags. It is said that the king of Babylon built wonderful hanging gardens and artificial highlands to keep his Medean wife from becoming homesick for her native mountains.

How much of our heart-hunger is from the past! It survives from a life left behind. We are but images worked by wires stretching back thru the centuries that are gone. We are each little more than a series of spectres, one inside the others. The love of children for swinging and tree-climbing and robbing birds' nests, and the general craving of mankind for the wilds, are survivals of the old, wild, tree-dwelling life which we have so recently left. The cradle and the rocking-chair are artificial tree-tops. Human beings never would have invented these things, because they never would have had parts in their nature calling for their invention, *if our far ancestors had not been tree-dwellers.*

Can't you see what a wonderful key this idea of survivals is, and how it makes plain so many things that are not understood without it at all?

11. The Ways of Chickens.

The ancestor of the domestic chicken is the

jungle-fowl of India. This bird is dark-red in color, sleeps in low trees, and roosts night after night in the same place. It nests on the ground, and the female has the habit of cackling when she has laid an egg—a rather strange practice for a bird. Polygamy prevails. The males are exceedingly pugnacious, and sing to the sunrise as their town-dwelling descendants do the world over to-day.

Domesticated chickens have many ways of acting which can be understood only by a knowledge of the ways of their ancestors. Those ways are not exactly vestigial, that is, they are not useless, but many of them probably never would have been originated at all if chickens had always lived in the conditions they now live in. The wild chickens (jungle-fowls) had them because they were useful. The domestic chickens have them merely because they have been presented to them.

Domestic chickens make their nests on the ground, not in trees as most birds do. They follow their ancestors. But they sleep in trees, either real or artificial, not on the ground as ducks and geese do. Chickens also have the habit of sleeping night after night in the same place, like the jungle-fowl. Take young chickens and put them to roost in a certain place two or three times and they will roost there of their own accord after that.

The domestic hen hides her nest. She also has the instinct, when she has laid an egg, to announce

the fact by cackling. It looks as tho these two instincts would in practice have the effect of counteracting each other. And they do in civilization. But we must remember in seeking explanation for the instincts of domesticated animals that these instincts were for the most part laid down in the natures of these creatures in circumstances very different from those which surround them today. The hen as a wild bird laid her eggs in a secret nest and cackled, long before there were any beings as intelligent as men on the earth.

It has been supposed that the running and cackling that the hen indulges in when she leaves her nest is a trick which she used to lure the fox from her nest. The fox would follow the hen and forget the nest. The dove and the partridge employ tricks of this kind to lure enemies from the vicinity of their nest. And this probably is the explanation of the noisy flight of the hen when she is *disturbed* on her nest.

The cackling and flight which a hen indulges in when disturbed are probably a different performance from the ordinary cackling of the hen after laying an egg. I notice that when the hen cackles the rooster cackles too. And it may be that this duet has in the wild state the purpose of announcing the location of the two individuals to each other. Wild chickens live in families, each composed of a single male and several females. The male is very jealous of his wives and very loyal to them. He regards himself as their natural lord

and protector. When a member of his family has retired to her nest and announces by her cackling that she no longer has occasion to be alone, the male cackles in response to let her know where to find her family, which in the meantime would often have drifted some distance away. I have noticed that the male is more or less nervous and anxious on these occasions; and cackles generally to members of his own family only, not to members of neighboring families.

12. Miracles to Come.

The most advanced breeds of the domestic chicken have almost entirely lost the nest-hiding instinct, which is so strong in their wild ancestors. They have also extended their egg-laying to all seasons of the year. The domestic fowl is a bird. In the wild state it has the common practice of wild birds of laying a nest of eggs in the spring and hatching them, and then laying no more till the next spring. But by selection breeds have been developed in which egg-laying is continual.

Cows have been induced to prolong the milk-producing period in the same way. If we continue to hatch eggs by artificial hens and to select for breeding purposes those more intent on egg-laying, we may develop hens after awhile that will lay continually the year around, and without any inclination to set or cluck or hover over their young. It would be possible also to develop cows in which the milk-producing function were independent of the act of becoming mothers.

Domestic Selection, in both animals and plants, is in its infancy. Only those with the souls of seers can even dream of the miracles that are destined to be wrought by man on himself and by man on the races associated with him, in the ages that are yet to dawn on this globe. Man has already made spineless cactuses, and green roses, and seedless oranges, apples, grapes, bananas, and pineapples. And in the same way he can, if he wants to, and will set his mind to it, develop mustard seeds as big as marbles, and sheep with hair like silk, and cows that do nothing but give cream the year around.

13. Cliff-dwellers with Wings.

I wonder how many of those who have associated with pigeons have ever thought why these birds do not light in trees and do not build their nests in trees, as birds usually do, instead of in artificial apartments created by man.

There are something like 200 different varieties of the domestic pigeon. They have all come from the rock-dove, a bird which makes its home among the sea-cliffs of Europe. The rock-dove is not a tree-haunting bird. It perches on rocks, and builds its nest in the clefts of the rocks. The domestic pigeon builds its nest in a man-made cave because its ancestors were cliff-dwellers and built their nests in rock-clefts. It prefers the house-top to trees, because a house-top or gable is a more satisfactory cliff than a tree.

If the pigeon had been domesticated in America instead of in Europe, it would have had for its ancestor the wild pigeon which once lived in such numbers in the forests of eastern North America, the so-called passenger pigeon. Then, it would have been a haunter of the trees, and been a very different being from the cooing cave-dweller who today lives among the artificial fastnesses of our streets and barnyards. It would have built its nest in the trees, and slept in the trees, and had the instinct to migrate. The rock-dove is not a migratory bird, and hence domesticated pigeons have no tendency to migrate. But if the domesticated pigeon had come from the American wild pigeon, instead of from the European, it would have had the migrating instinct, and it would probably have been necessary to make it flightless in order to keep it from flying away in the fall, as we have done with the domesticated geese and ducks.

14. Wild Survivals in Hogs.

The domestic hog came from the wild boar of Europe, the western breeds, anyway; those of China and the East probably being descended from the wild pig of India, a different species. In the wild state these animals live in small droves or societies, and feed on roots and bulbs, which they unearth with their short, powerful proboscis. Wild hogs are polygamous in their family relations. Like their not very distant relative, the rhinoceros, they are swamp-loving animals, root-

ing or wallowing in the soft mud, and sleeping or mediating in the heat of the day. They manifest a loyalty to each other in times of danger that borders on recklessness. If the alarm-squeal is sent out by a member of a band, the whole band will risk their very lives, if necessary, to help the one in distress. They attack their enemies with raised bristles and hair-raising "whoofs." When a mother and her young are surprised by sudden danger, the little ones, by instinct, drop flat and motionless in their tracks, while the mother proceeds to handle the situation with unflinching courage.

And anyone who has ever associated with hogs knows how faithfully the domestic breeds have held on to the instincts of their ancestors, even tho these instincts have been largely useless since they have lived in a pen. It was often a wonder of my boyhood to see little young pigs suddenly become inanimate—to see them drop flat on the ground and lie there as motionless as if they had been pasted there—when some event supposed to have danger in it came along.

The bristles and war "whoofs" of hogs are the war-paint and war-whoops of men. Many animals add to their chances of success on going into battle by making themselves look as alarming as possible. The dog growls and shows his teeth, the bull bellows and paws the earth, the cat gets its back up and "spits," the goose hisses, and the gorilla yells and beats its breast with its fists.

Every one is familiar with the pig's favorite activity—excavation—and its fondness for day-dreaming in moist earth or mud.

Pigs dig, goats gambol, and dogs and men hunt and fight, when they are released from the cares of life and haven't anything else to do. These are all instances of the survival of the wild. Pigs find pleasure and exercise in excavation, just as men and dogs find pleasure in hunting and war.

15. Other Vestigial Instincts.

The domesticated goose is from the Canada goose—the wild gray goose which flies over in V-shaped flocks going north in the spring. The wild goose is a migrating bird. It spends its summers in the northern part of Europe, Asia, and North America, and its winters in India, Egypt, and the sub-tropical parts of North America. When the weather begins to grow cold in the fall there is a feeling comes over it urging it to fly toward the sunnier sides of the world. And when the sun comes up from the south in March and April and warms the airs of the northern hemisphere, there is a corresponding feeling in the goose to fly to the north. As a boy living on a farm, I remember how, when the wild geese used to fly over in the spring and call out of the sky, our domesticated geese would call back excitedly, and would sometimes all start to run, at the same time flapping their wings. *It was the call of the wild.* They had the *urge* still surviving in their natures, the old

spring hunger for the Pole, but they did not have the traveling facilities to enable them to carry out their desires.

Tame ducks that live without access to a body of water will often go thru the motion of dipping and diving and splashing the water with their

DUCKS "BATHING" IN A DRY LOT

wings *in a dry lot*. The machinery of their nature was set up in surroundings where there was always water, and they continue to act as waterbirds even in the absence of water.

The donkey and the camel, both originally desert animals, have an unusual aversion for getting wet; horses stampede ("run away") when frightened; bees tend to fly away and find some natural habitation when they swarm; park quails scratch the floor of their cage when feeding, as they were accustomed to scratch for food among the thickets and grasses; and tame turtles will drop into the

water on being surprised, when it is perfectly plain that they do so mechanically rather than from actual fear.

There are hundreds of such survivals of wild life in the psychologies of domesticated animals. They persist, tho often in a dwindling condition, in accordance with that conservative tendency of the universe which in living organisms we call Heredity.

PART III.

The Origin of Higher Peoples

1. Purpose of the Lesson.

All civilized peoples have come from savage peoples. They have *grown* from savages, just as you and I as individuals have grown from babies. It is important to know this. For we can't understand the things civilized men and women do and think and feel—many of them are so barbarous and strange—unless we recognize the fact that civilized men and women are merely made-over savages.

It is also important to know something of the nature and ideas of savages; so that we can compare them with our own nature and ideas and see how much of us has survived from savage times and how much has been produced since then.

The purposes of this lesson are, therefore, (1) to teach you that all higher peoples go back in their ancestry to savages, and (2) to teach you something about what sort of beings savages are; that is, something about what sort of animals our ancestors were.

2. Where the English Came From.

Go back into the past two or three thousand years, and you don't find any English in the world, nor any French, nor Spanish, nor Germans, nor

Russians. But what you do find is that each of these modern peoples is represented at that time by one or more barbarous tribes, from which it has grown. The English go back to the Angles, Saxons, and Jutes, three barbarous or semi-barbarous tribes that lived originally in the region of Denmark and southward. They came over and settled the island of Great Britain fourteen or fifteen hundred years ago. The first settlement was made about 449 A. D.

These people were very rude. They dressed in skins, loved adventure, and were fond of water. They lived a good deal by pillage. They would get in their boats and cruise along the coast of the Baltic till they came to a town of some other tribe. They would drive the people out or kill them, plunder the town, and then burn it. They thought this was the proper thing to do; for they acted on the principle that "might makes right;" that is, on the principle that it is right to do whatever one has the power to do.

Wherever you go nearly you find English—in North and South America (*we* are English), in South Africa, Australia, India, and in many of the islands of the sea. The English, more than any other people, have been the explorers and settlers of the planet. The English-speaking peoples are so enterprising that they already occupy a large part of the surface of the earth, including practically two whole continents.

One reason why the English have been so rest-

less as a race is because their ancestors were that kind of a people—sea-rovers. Suppose the English had come from land animals—beings who lived in the interior of Europe, a quiet, home-loving, peaceful people. Don't you suppose the history of England would have been a very different thing from what it is today? The adult English people merely reflect the character of the infant peoples from whom they have grown, just as a grown man is in a general way like what he was when he was a child.

3. Other Modern Peoples.

The French came from the Gauls, scattered tribes that lived in the region of what is now France at the time of the Roman Empire.

The Germans came from the Goths, Vandals, and Cimbri, three barbarous tribes that lived in central Europe and assisted in overrunning the Roman Empire.

The Italians came from the Romans, a people who spoke the Latin language and lived in the peninsula of Italy and other Mediterranean lands about the time of Christ and later.

The modern Greeks are from the ancient Greeks.

And all of the modern white peoples—Russians, Germans, French, English, Swedes, and Americans—can trace their ancestry back, by means of common languages and common legends, to a people who came long ago out of the East, out of the

land beyond the Caspian. These people came into what is now Europe and settled there long before written history. And from them all of the modern European peoples have come. So you see we have all branched from the same tribe if we go back far enough.

4. The Cradle of Mankind.

But where did these original white people come from? And where did the dark peoples come from? And the Chinese? And the Indians? Where was the cradle of the human species? In what part of the world and at what time did man originate as a new and distinct species of animal? This must have occurred at some certain place on the earth and at some definite period in time.

It is pretty certain that the human species did not originate in what is called the western half of the earth and spread from there as a center over the world. For reasons, the most of which I cannot give you, because it would take too long to make them plain, it is believed by scientists that the cradle of mankind was somewhere in the eastern hemisphere.

One reason for this belief is that it is here that we find the oldest tracks of man, the earliest evidence of his existence in the world. We can go back into the civilizations of the Nile and of the Euphrates and of some of the rivers of India for thousands of years, in some places 8,000 or 10,000 years. Here we find one civilization on

top of another. Here are found the things men have fought with and worked with and lived in—objects which have defied the teeth of time, and which endure long after their creators have vanished.

It is believed that man originated somewhere in southern Asia. Or, possibly, still further south than the present boundary of Asia, in lands now drowned by the Indian Ocean. This supposed land has been called *Lemuria.*

5. Changes in Geography.

You know from your study of physiography that a large part of what is now the land surface of the earth was once the floor of the sea. Sandstone and limestone, which are so common over the land surfaces, we know, are made under water, and no place else. And we find the fossils of fishes and other water animals scattered all over the land, even to the mountain tops. The remains of a whale were found in northern Mississippi the other day. This animal, when it died, was swimming in the Mississippi Sea, a great body of water which once extended from the Gulf of Mexico over what is now the Great Central Plains of the United States.

The City of Louisville, Kentucky, is built where it is because the Ohio river has a fall there. This fall is caused by a coral reef running across the river at that point. Corals are sea animals. And the corals that located the city of Louisville by

forming a reef at that particular place and compelling the Ohio river to stumble over it, lived and died in that far off time when Indiana and Kentucky formed a part of the floor of the Mississippi Sea.

Now, it is not so well known, but it is a fair inference, that much of what is now water surface was once land surface. We mine coal under the sea in some places. And I suppose that if we could only get at them we would find many things in the lands under the sea that would be useful to us land animals. Maybe, sometime, when we have exhausted the stores of the land, we shall get so hard up or so skilled that we shall be able to get at these drowned treaures beneath the oceans.

We *know* that there have been many changes in the geography of the earth in the past—that the geography of the earth a million or ten million years ago was not what it is today. We know that Africa was joined to Europe at Gibraltar until rather recent times in the history of the earth, and that Asia and North America were united at Behring Strait.

Geologists say that North and South America have been separate continents during most of their geological history. The Isthmus of Panama is very recent, geologically speaking. There are reasons for believing that before South America was joined to North America it was connected with Africa and even Australia, forming a great Antarctic continent.

Lands (shaded) and Seas (white) at the Beginning of the Eocene Epoch

In the Pliocene age of geology Alaska was joined to Asia by a rather wide isthmus. It was over this isthmus of Behring that many of the North American animals first came into America from Asia. Animals like the buffalo and the mountain sheep did not originate in America. They came from Asia. And they came over the Behring bridge in the Pliocene age of the world. No bones of these animals are found in America previous to this time. The Indians also no doubt came into America from Asia by the same route, altho the Indians came much later than the buffalo.

Until comparatively recent times in geological history, the island of Great Britain was joined to, and formed a part of, the continent of Europe. The earliest inhabitants of Great Britain were Celts. They were called Britons by the Anglo-Saxons. Great Britain may not have become an island until some time after it was settled by human beings. The Celts may have walked dry-shod over what is now the North Sea into what was then a western peninsula of Continental Europe. That is, when England was first settled by human beings, it may have been a peninsula.

6. How Old is Man?

How long it has been since man originated as a new species of animal, no one knows. But it *is* known that it was a long time ago. Until fifty or one hundred years ago, it was generally supposed

that human beings had not existed on the earth more than five or six thousand years. But the more man is studied and the more the earth is rummaged, the further back into the past is the beginning of things known to be. It is known positively that there have been *living beings* on the earth for a good many *millions* of years. It is estimated that life has existed on the earth for fifty or one hundred million years; that is, that the animal kingdom is fifty or one hundred million years old. But during most of this time there were no *human* beings in the world. Man is a recent species. But it is believed that man has existed on the earth for as much as five hundred thousand years.

7. The Spread of Mankind.

The human species probably originated somewhere in the Indian region of southern Asia. And from this as a center it has spread pretty thoroughly over the land surfaces of the globe, not only over the continents but to most of the islands. One branch moved westward and formed the dark people of Africa. Another moved north and northwest and became the white or Caucasian race. Another moved north and east and developed into the yellow or orange race, that is, the Chinese, Japanese, etc. And a branch of the orange race probably moved on over from Asia, past the Behring Strait region, into what is now called America, forming a modification of the or-

ange race, the copper or red race, the so-called American Indians. And another branch of the species moved eastward to the Malay peninsula, the East India Islands, Borneo, New Guinea, the islands of the South Pacific, on as far as the Hawaiian Islands, forming the brown or Malay race. This gives you a little idea of the scattering

THE SPREAD OF MANKIND

out of the different races of men from the original human nest.

The Malays are an island race. They love the water and are at home in the water. They have been developed in connection with the water, and are largely water animals. You know there is one species of buffalo that is called the "water buffalo," because it loves the water. The Malays are *water men.*

The Hawaiian islands were not settled from

North America nor Asia, but by those brown sea-rovers from the southwest. The nearest land to the Hawaiian islands is over 2,000 miles away. How the first human inhabitants of those remote dots ever found their way over the vast wave-wastes they had to traverse before getting there no one will ever know. But probably they were refugees, carried out to sea by a storm, and, losing their way on the trackless plains, wandered on and on, until they happened to stumble upon those hitherto unknown volcano-tops. We know such things can happen, for a junk with survivors on board drifted ashore from the west at the Hawaiian islands in December, 1832.

8. The First Men.

Original men, that is, the first men who ever existed, probably lived in small, loose bands, each band being composed of from 20 to 50 or more individuals. These bands, in their organization and modes of life, were probably very much like the bands of other animals that are met with today in the forests and on the prairies. They were without fixed places of abode. They subsisted on the fruits, nuts, roots, young shoots, and birds' eggs which they came upon during their wanderings thru the forest. These bands of early men must have had only the bare beginnings of law and government. Each band was led by an old male as chief, who had won his position as leader by his exceptional strength and intelligence.

There was probably no family life, the sexes mingling much as among lower animals generally. Early men lived in a tropical climate, and were without either clothes or fire. They had long arms, and short, weak legs. Their weapons were sticks and stones. They were able to overcome all except the larger animals by co-operation and the force of numbers. They probably used the trees a great deal as a refuge in time of danger. They may have had the beginnings of superstitution.

9. How the Different Races Arose.

It is not probable that original men were of various colors—some black and some white and some orange and some copper and some brown. It seems more likely that they were all alike, all one color, and that the different races have come about as a result of the different surroundings in which they have lived for so many thousands of years. There are reasons for believing that original men were dark in skin and hair, and rather animal-like in character and intelligence. The first men were very certainly not white. The animals most nearly related to man (the ones from whom he has probably developed, i. e., the man-like apes) are *not white* animals, but *dark*. The lower races of men are also prevailingly dark, not white, in skin and hair. The difference in color, size, character, and mental ability which exist today have been caused by differences in climate,

soil, food, activities, and natural surroundings to which they have been subjected.

10. Infant and Advanced Races.

Some races have made great changes in their appearance and surroundings and nature and powers of mind, and are today very different from those far-off Lemurians who dwelt so long ago in that cradle land of India. Other races have been more fixed. They have remained more nearly in the early condition. We call these latter *savages*. Savages are merely people who are in the infant stages of human development. They have never grown up. They are "child races."

Most of the brown race are still in this primitive condition of mankind. And a large part of the people of Africa are either in the savage stage or the stage of barbarism, which is intermediate between savagery and civilization. Some of the lowest Indian tribes were in the savage stage when first found by white peoples, but most of them were in the stage of barbarism. The race which has been most talented and enterprising and which has played the most distinguished role in the affairs of the world has been the white race.

11. Ages of Mankind.

Man's first tools were probably of wood or stone. It doesn't require a high order of ingenuity to turn a limb of a tree into a club or a stone into a missile, but it is more ingenuity than most

animals possess. Baboons will sometimes throw stones at their enemies; and an elephant will break off the branch of a tree and use it as a fly-brush. Wasps have been observed to use tiny pebbles as hammers in packing the dirt firmly into their burrows. But most sub-humans have no tools other than certain parts of their bodies which are adapted to certain uses.

Man's first inventions were not agricultural implements, but weapons. The greatest anxiety of original man was not how to get something to eat, but how to keep from being eaten. And so one of the very first things man did when he began to branch out in his career of world conquest was to arm himself.

The development of mankind has been divided into Ages or Stages, each Age representing a certain degree of advancement and culture. The Ages that I shall give you in this topic are not periods of time, but degrees of advancement. These Ages are often known as the Stone Age, the Bronze Age, and the Iron Age, so-called from the material which man used prevailingly for his weapons and tools.

But a more helpful subdivision is that into *Savagery, Barbarism,* and *Civilization.* The following nine stages given by Morgan in his "Ancient Society" are probably as good as any:

1. *Lower Savagery,* extending from the beginning of man to the invention of the art of fire-making and the acquisition of a fish diet.

During this stage the human species was small in numbers, and was restricted in habitat to a small area somewhere in the tropics. These children of nature were very rude. They were the first rough-drafts of men and women. But they had one thing that no other animals on the earth at that time had, and that was a simple, articulate language. They could *talk* to each other.

Some of the tribes of the interior of Borneo and the Malay peninsula are still in this lowest human stage. The Andaman Islanders use fire, but have no way of producing it. They still get their fire from nature—from fires caused by volcanoes, lightning, and the like—and carefully preserve it, borrowing from one another when they get out.

2. *Middle Savagery,* from the invention of the art of fire-making and the acquisition of a fish diet to the invention of the bow and arrow.

It was during this stage that mankind spread from its original habitat, somewhere in tropical Asia or Africa, over a large part of the earth. The ability to make fire artificially enabled men to leave the regions of perpetual warmth and spread to the colder parts of the earth. They could take their climate with them. The spear and the club were probably the only important inventions men had made when they began to scatter over the world, that is, the only ones besides fire-making; because these are the only inventions common to all the races of men.

The native Australians and the most of the

Polynesians were in this stage when discovered by the white race.

3. *Upper Savagery,* from the invention of the bow and arrow to the invention of the art of making pottery.

The invention of the bow and arrow was a very important one. It corresponds in importance to the invention of the sword during the period of Barbarism and of fire-arms during the period of Civilization.

Some of the lowest tribes of the American Indians were in the stage of Upper Savagery when first found by the white peoples. There were three stages of culture among the American Indians, namely, Upper Savagery, Lower Barbarism, and Middle Barbarism. The highest stage was represented by the Indians of Mexico, New Mexico and Peru, who lived in towns and cultivated the corn and potato plants.

4. *Lower Barbarism,* from the invention of pottery to the domestication of animals in the eastern hemisphere and the domestication of the corn plant in the western hemisphere.

The art of making pottery probably arose in connection with the art of cooking, and in its simplest beginnings consisted in merely coating wooden cooking vessels with clay to keep them from burning.

It is impossible for us to realize what hard conditions man has had to pass thru in climbing to

his present position of luxury and power. The Romans had no sugar. Washington never owned a stove. At Mt. Vernon is the old home of Washington, standing there in much the same condition as when Washington lived. In the kitchen is the fire-place and all the old devices for cooking over it hanging there. But no stove. A fire-place is merely a camp-fire which has been brought into the house and presented with a chimney.

The people in the main part of the world never had any potatoes, corn, tomatoes, peanuts, nor turkeys until after America was discovered. In very early stages men cooked with hot stones, in wooden cooking vessels. They put clay on these vessels to keep them from burning, and learned to harden it by fire, finally coming to use clay vessels altogether.

The most of the Indian tribes in the United States east of the Missouri river and many of the tribes of Asia and early Europe were in the stage of Lower Barbarism.

5. *Middle Barbarism,* from the domestication of animals in the East and of the corn plant in the West to the invention of the art of smelting iron ore and the use of iron tools.

The village Indians of Mexico, New Mexico, Central America, and Peru were in this stage when found by Europeans. So also were the Britons, the people who lived in Great Britain

when the Angles and Saxons came over there, altho the Britons had some knowledge of iron.

6. *Upper Barbarism,* from the smelting of iron ore and the use of iron tools to the invention of the alphabet.

The four events of pre-eminent importance in the period of Barbarism were the following: the invention of the process of smelting iron ore, the domestication of animals, the discovery of the cereals, and the use of stone in architecture. "The production of iron was the event of events in human experience, without a parallel and without an equal, beside which all other inventions and discoveries were subordinate or inconsiderable" (Morgan). Some historians believe that mankind might have remained in the stage of Barbarism to the present day, if men had not learned how to produce this king of metals. You see what a narrow escape we have had.

The Greek tribes of the age of Homer, the Italian tribes just before the founding of Rome, and the German tribes of the time of Caesar were in Upper Barbarism.

7. *Ancient Civilization,* from the invention of the alphabet to about 500 A. D. in European history.

8. *Medieval Civilization,* from about 500 A. D. to about 1500 A. D.

9. *Modern Civilization,* from about 1500 A. D. to the present time.

The period of Savagery was a very long one—

much longer than the periods of Barbarism and Civilization taken together. If we take 500,000 years as the length of time man has existed on the earth, then something like 400,000 of these years must be given to the period of Savagery. Men moved very slowly at first. Savages almost stand still. They have no idea of *progress*. Their great anxiety is to do things as their ancestors did them. Only in the highest peoples of the earth do we find any real desire to progress, and only in a few individuals among these highest races.

12. The Occupations of Savages.

Among the higher races of men, the chief occupations are agriculture, stock-raising manufacturing, mining, and commerce. These occupations are represented very feebly, if at all, among the lowest races of men. Savages live on the *wild* world—on the wild plants and the wild animals.

The chief occupations of savages are *hunting, fishing,* and *fighting*. The savage lives "from hand to mouth." He hasn't the understanding to look ahead to the future, and his means of production are too feeble to enable him to accumulate anything ahead even if he knew enough to do so.

Altho the savage is without domesticated plants and animals, he is well supplied with *enemies*. The chronic condition of savage men is one of *war*. The savage is compelled constantly to defend himself not only against other men, but against wild animals by whom he is surrounded.

He slays other animals both for food and in self-preservation. The larger and more dangerous flesh-eating animals are today swept from the earth. But this condition of things has come about only after a long and bloody struggle between human beings with their bows and arrows and spears, and the non-human beings with their teeth and claws.

Savages live in small groups called *tribes*, which are almost constantly at war with each other. The general condition of peace prevailing among higher men is unknown to savages. With savages war is the natural state, and peace the exception. The business of killing and of being killed is carried on by the *men*, the women, for the most part, following other occupations.

Women are the drudges and burden-bearers among savages. They do all the hard work. The condition of women among primitive peoples is everywhere deplorable and unhappy. The men are more powerful than the women, and they use their superior strength to enslave women and to force upon them the hard and disagreeable tasks of life. The courtesy, respect, and protection shown to women among the higher human races are unknown among the lower races. The women of savages prepare the food and take care of the young. They act as pack-animals for the tribe, and, if the tribe is intelligent enough to engage in agriculture, the women do the work in the fields.

The men look with contempt on women's work.

An Eskimo will go out and kill a seal and bring it to shore near his tent. But, according to his way of thinking, it would be a disgrace for him even to pull the seal out of the water. That is woman's work. He probably feels about work of that kind much as we higher men feel about getting out a washing or cooking our own meals.

"WOMEN, AMONG SAVAGES, DO ALL THE HARD WORK"

The hunting of water animals is called *fishing.* You can't hunt fishes on horseback nor with dogs. The most common method of fishing is by *deception,* by offering the fishes food or something that looks like food, and then, when they come to get it, arresting them by a hook concealed in the offering.

13. The Nature of Savages.

Lubbock in his "Origin of Civilization" cites hundreds of instances of savage rudeness and

barbarity which seem almost unbelievable to one accustomed all his life to types of human character such as are found in Europe and America.

The following paragraph is about the Sioux Indians. It was written by a man who lived among them for a number of years and knew them thoroughly:

"They are bigoted, barbarous, and exceedingly superstitious. They regard most of the vices of higher men as virtues. Theft, arson, rape, and murder are regarded by them as the means of distinction. The young Indian is taught from childhood that killing is the highest of virtues. In their dances and at their feasts the warriors recite their deeds of theft, pillage, and slaughter as precious things. And the highest ambition of a young Indian is to secure the 'feather,' which is the evidence of his having murdered or participated in the murder of some human being—whether man, woman, or child is immaterial."

"Conscience," says Burton, "does not exist in east Africa; and repentance simply expresses regret for missed opportunities for crime. Robbery makes the honorable man, and murder makes the hero."

When the Fuegians, who inhabit the southern extremity of South America, are hard-pressed by want, they kill their old women rather than their dogs, saying: "Old women no use; dogs kill otters."

"What," said a negro to Burton, "am I to

starve while my sister has children whom she can sell?" The idea!—that he should go hungry so long as he had nieces and nephews who could be put on the market!

Speaking of the wild men in the interior of Borneo, Lubbock says:

"They live absolutely in a state of nature, neither cultivating the soil nor living in huts. They move about the woods like wild animals. When the children are old enough to shift for themselves, they usually separate, neither one afterwards thinking of the other. At night they sleep under some large tree whose branches hang low."

When the natives of Australia first saw pack-oxen, some of them were frightened and took them for demons with spears on their heads, while others thought they were the wives of the settlers because they carried the baggage.

Savages cry easily and are afraid of the dark; they are fond of pets and toys; they have weak wills and feeble reasoning powers; they are notoriously fickle and unreliable, and exceedingly given to exaggeration of their own importance—in all of these particulars being much like the children of the higher races of men.

Richard says of the Dogrib Indians: "However great the reward they were to receive at the end of their journey, they could not be depended on to carry letters. Any slight difficulty, a prospect of a good meal, or a sudden impulse to do this or

that, was enough to turn them aside for an indefinite length of time."

A writer, speaking of the wild tribes in the Malay peninsula, says that they are always restless and always seem to think that they would be better off in some other place than the one they are in at the time. Like children, they almost always act impulsively, being rarely guided by reflection.

Of the South Sea Islanders, it is said that they express any strong passion that affects them by crying, and, like children, seem to forget their tears as soon as they are shed. A New Zealand chief is said to have "cried like a child because the sailors spoiled his favorite cloak by spilling flour on it."

Captain Cook says that the king and queen of Tahiti amused themselves with two large dolls. And according to Burton the Negro kings of West Africa generally "are delighted with toys, rubber faces, and other trinkets, such as would be acceptable to a child of eight—which the negro is."

Like the child, the savage is exceedingly variable and chameleonic in his nature, being driven hither and thither by whatever feelings and impulses happen along from time to time. He is governed by individual emotions, which successively depose one another, instead of by a council of the emotions. The nature of the savage is a series of emotional despotisms, instead of a republic presided over by reason.

14. The Understanding of Savages.

To the savage, things are what they *seem* to be. He does not look below the surface to find *causes*. He explains things as a child would explain them. The sun actually rises and sets, as it seems to do. The winds are alive. Diseases are caused by evil spirits, which get into the bodies of the sick and drive out the natural spirits. Dreams are real experiences which the soul goes thru in its wanderings outside the body when the body is asleep. A man's shadow or his image reflected in the water is a real part of himself. Savages are very reluctant about having their pictures taken, because they believe that the picture is something that has been extracted from themselves. The Basutos (Africa) are very careful when they walk along a river not to let their shadow fall into the water, for fear the crocodile will get it, and by means of the shadow drag them into the river and eat them.

Thunder, among savages, is often regarded as an actual deity or as the voice of a deity. "One night," says Tanner, "an Indian chief became much alarmed at the violence of the storm, and got up and offered some tobacco to the thunder, begging it to stop."

To the mind of the savage every object has a spirit, and this spirit causes the object to do whatever it does. A watch is a living thing. The ticking of the watch is believed to be caused by the spirit inside the watch. The howl of the wind is

the voice of the wind—the voice of something alive. When a tree falls in the forest, the savage believes that a spirit gets inside the tree and throws it down. And if the tree happens to fall on him he believes that the spirit has a grudge against him, and hurled the tree in his direction on purpose. The savage knows nothing of *natural law,* nothing of chemistry and physics, nor physiology. When fire burns a piece of wood, it is the understanding of the savage that the substance of that piece of wood goes out of existence.

Nothing is ever destroyed. Every particle of substance that exists today will always exist. It is not possible to destroy anything nor to create anything—*except form.* The forms of substances change, but the atoms themselves remain the same. This is one of the discoveries of modern chemistry. It is known as the Law of the Indestructibility of Matter. When a piece of paper is burned up, every particle of matter that was in the paper continues to exist after the burning just as before, but in a different form. The carbon of the paper combines with oxygen and forms carbon dioxide (CO_2), which passes into the air and is invisible. But the savage knows nothing of these changes, and believes that the paper goes out of existence because he doesn't see it any more.

There are good spirits and bad spirits, according to the savage understanding. The bad spirits are supposed to be much more numerous and en-

ergetic than the good spirits. The good spirits are believed by the savage to be on his side, and the bad spirits are the ones he is all the time trying either to outwit or to gain the favor of. When he has a good day's hunting or has won a victory over his enemies, he credits his success to the aid of good spirits. On the other hand, when he fails in his undertakings, or has some accident, or gets sick, he believes that his misfortunes are caused by evil spirits. The great problem with the savage is the problem of dealing successfully with these two different kinds of spirits, which haunt him and hover over him and dog his footsteps day and night from his cradle to his grave.

The practice of medicine among savages is based on the theory that disease is caused by the dethronement of one spirit by another, the usurping spirit being a demon or evil spirit. There are no microbes among savages. Instead of antitoxins, savage doctors use tom-toms and bitter medicines. Their task is to "cast out" the evil spirit that has wormed its way into their patient. And they do it either by making loud noises and scaring the intruder out, or by pouring vile drugs into the patient and in this way making it so unpleasant for the demon that it will move on.

When any one dies, the savage believes that the spirit of the dead hangs around the place where the body is buried for some time. The notion of "haunted houses" and of the prevalence of

"ghosts" about graveyards is a modern survival of this old savage theory of spirits.

Savages believe in signs, wonders, and miracles, for they know nothing of the laws of nature as we understand them. Eskimos believe that a child will get well if its mother will refrain from changing her socks while the sickness lasts. And if a man is sick they believe his sickness would certainly be made worse if his brother should eat any portion of the left side of a carabou. But such ideas, foolish and unscientific as they are, are just as well based as the practice of carrying a chestnut or a rabbit's foot in one's pocket to keep off bad luck, and a hundred and one other things that white people do right here in Chicago all the time.

Witchcraft is common everywhere among primitive men. A *witch* is a person who by means of charms or magic words is supposed to be able to invoke the enmity of evil spirits on whomsoever he wishes; that is, is a person who "stands in" with the evil spirits. And the power supposed to be exercised by witches is called witchcraft. Even within historic times witch-hunting has been an honorable business. Witchcraft was one of the worst superstitions that ever afflicted the human mind. And it was not until comparatively recent times that it was finally shaken off. The writings of Shakspere indicate that it was universally believed in in his day. The people of Salem, Massachusetts, considered it undeniable for a time; and witches were legally

executed in the City of Mexico as late as 1873.

Many savage races cannot comprehend numbers greater than five or six, and are unable to solve the simplest mathematical problems without using the fingers. A savage cannot do mental arithmetic. He hasn't the machinery.

The mind of the savage is concrete. It is able to deal with actual things only. Abstract ideas, such as those of numbers, are foreign to the simple sense intelligence of the savage. "They puzzle very much after five in counting," says a writer in speaking of the Damara negroes, "because no spare hand remains to grasp and secure the fingers that are required for units. Yet they seldom lose oxen. The way they discover the loss of one is not by the number of the herd being diminished, but by the absence of a face they know. When bartering is on, each sheep must be paid for separately. Thus, suppose two sticks of tobacco to be the price of one sheep. It would sorely puzzle a Damara for one to take two sheep and give him four sticks." This same writer says in another place: "A Damara may know the road perfectly from A to B, and again from B to C, but he would have no idea of a straight cut from A to C."

A study of the implements and weapons of savages shows that these implements and weapons have been the products of many thousands of years of improvement. They have not been invented. They have arisen by small modifications

which were made from time to time, largely by accident. The natural selection of the best of these implements has led to the various appliances, without any distinct invention of them.

15. Moral Ideas of Savages.

The earliest human *virtues* to develop were those which were useful in the preservation of the individual and the tribe—such as *courage, loyalty, idurance,* the *social feeling,* and the *desire* for *praise* and the *dread* of *blame.*

No man could be useful or faithful to his tribe in a world filled with enemies without *courage.* Hence this trait of character has been universally extolled among primitive men. Among higher men, there are fewer dangers, and hence fewer occasions for the exercise of physical courage. The emphasis of approval has been shifted considerably from physical courage to moral courage. The ultimate heroes of this world will *not* be *tribal* or *national* heroes, but the heroes of *humanity.*

Men have stood by each other in the fierce times gone by because it was the only way they could stand. The individual was nothing in the struggle for life. No man could stand alone. The individual could survive only by uniting his strength with that of others. Reason would early teach a man that if he wanted the help of his fellow-men he would have to help them in return, and that he could expect others to be true to him

only as he was true to them. *Loyalty,* therefore, has been everywhere among primitive peoples one of the highest virtues. Many instances are recorded of savages deliberately sacrificing their lives as prisoners rather than betray their comrades.

Since it is not possible to do those things that are necessary for the welfare of the tribe without *endurance,* this quality has at all times been highly valued by savages. The American Indian voluntarily submits to the most painful tortures without a groan in order to demonstrate his grit and fortitude.

In the rough, semi-frontier world in which I lived as a boy, many of the ideals prevailing were essentially those of savages. A common test of manhood among us boys was the ability to endure having a piece of skin pinched out of the knuckle of the hand with the sharp finger nails. And a boy who could show a whole set of pinched-out knuckles was always looked up to by the other boys as a sort of hero. We all wanted to be "on his side."

Man's *social nature* was probably inherited from his ape-like ancestors, who commonly live together in loose bands or tribes. The social nature means the tendency in living beings to flow together, and live together, and help each other in the struggle for life. Social animals have an affinity for each other. They are uneasy and in-

complete when they are separated from their kind. Early men had this feeling.

Men must have had from the beginning a certain *sympathy* for each other, and must have warned each other of danger and given mutual aid in attack and defense. As men became more dominant in the world and the non-humans became of less consequence as enemies, men turned more and more against each other. Out of the long, fierce strife which men have waged among themselves, have developed, on the one hand, the tribal instincts, ideas, prejudices, and hatreds, and, on the other, unity, loyalty, and patriotism.

The *desire* for *praise* and the *dread* of *blame* are powerful incentives among all savages, as they are still among all higher peoples. The desire for "glory" is strong even among the rudest savages, as is shown by their excessive boasting, the care with which they decorate themselves, and their craving for "trophies," which last are merely the evidences that they are entitled to some sort of distinction.

The savage has only a very slight knowledge of the world in which he lives. He has no railroads to travel on, no telegraphs nor telephones, no newspapers and no books. He knows for the most part what he sees and hears. His world is bounded largely by his horizon. What there may be beyond the mountain chain he does not know. But whoever is over there is his enemy. And the fel-

low on the other side of the mountain feels the same way toward the fellow on this side.

"Mountains interposed and made of nations enemies,
Who had else, like kindred drops, been mingled into one."

—Cowper.

The savage observes a certain rude code of morals to the members of his own tribe, who are for the most part his kinspeople. But all those outside of his tribe are his enemies, and he acts quite differently toward them. Acts which are looked upon as bad when committed by a savage against the members of his own tribe may be regarded as harmless or even commendable when committed on those outside the tribe. Acts are not judged by their natures or results, but as to whether they are performed upon *outsiders* or upon *insiders.*

The Balantis (Africa) punish with death a theft committed against a fellow-tribesman, but encourage and reward thieving from other tribes.

The Afridi (Afghanistan) mother prays that her son may be a successful robber—not a robber of her own people but of other peoples—and in order that he may become skilled in crime teaches him to creep stealthily thru a hole in the wall.

In his dealings with the other members of his tribe the savage observes a certain code of morals,

But outsiders are outlaws. They may be attacked, robbed, deceived, murdered, eaten, or enslaved with perfect propriety. The savage is loyal, sympathetic, and truthful toward those belonging to his tribe, to his group or bunch, but is disloyal, untruthful, and unkind to those outside his group.

"There was no brotherhood recognized by our savage forefathers," says Sir Henry Maine, in speaking of the ancestors of the white peoples, "except actual relationship by blood. If a man was not of kin to another, there was nothing between them. He was an enemy to be hated, slain, or despoiled as much as the wild beasts upon which the tribe made war, as belonging, indeed, to the craftiest and cruelest of wild animals. It would scarcely be too strong to assert that the dogs which followed the camp had more in common with it than the tribesmen of a foreign and unrelated tribe."

The feeling of *enmity* and *hatred* which a savage feels toward strangers, toward those outside his tribe, seems to be the complement or opposite of the *social feelings* which the savage has toward the members of his tribe. *Sympathy* and *hate* have much the same relation to each other as have *pleasure* and *pain.*

The moral excellences of savages consist in the practice of those virtues which are necessary to the preservation of the tribe in a world of strife and war; courage, loyalty, endurance, sympathy,

and general conformity to the rules and usages of the tribe in its social, religious, and political organizations. Those virtues are more or less tribal in their extent. Toward outsiders, hatred, cruelty, intolerance, deception, robbery, and even murder are encouraged and approved. The personal virtues of temperance, prudence, modesty, industry, self-control, cleanliness, and the desire for self-improvement come later in human development. The virtues of humanity, justice, charity, gratitude, humanitarianism, and the desire for progress are also post-tribal in development.

There are savages and near-savages. Human beings representing a considerable range in development and culture are called savages. And many so-called "savages" show a higher grade of character and intelligence than is shown by the instances mentioned in this lesson. But, since men have come from lower animals, there must have been intermediate beings between those lower animal forms and the savages existing today that were even lower and more animal-like than those cited here.

PART IV.

Savage Survivals In Higher Peoples

1. Purpose of this Sub-course.

The first five lessons of this second-year ethics course form a sub-course in themselves. The general purpose of this sub-course is to teach something about our natures and how we happen to have the natures we have—something about where our natures came from.

You often hear it said that human nature never changes—that it is the same today as it has always been and that it will always be the same as it is now. This is not true. Human nature has *grown* to be what it is; and it will continue to change and grow thruout the ages of the future. It did not always exist. It has been *formed,* like coal, and river valleys, and mountains.

We used to believe that coal had always been in the ground. But we know now that it was nearly all formed in a certain age of the world called the Carboniferous Age. Before this age there was no coal in the ground, or very little. And we know, too, that coal has been formed by the accumulation of decaying vegetable matter, which grew and fell down age after age, and then was covered up by rock deposits; and by being subjected to different degrees of heat and pressure the dif-

ferent kinds of coal were formed. Hard coal is different from soft coal because it has had different experiences.

We used to believe that mountains and river valleys had always existed just as we find them. But you know better since you studied physiography. You know that river valleys have been filed out by the rivers that flow thru them. And you know that mountains have been lifted up and sculptured by weathering and erosion into the forms of today. And it is the same way with human nature. It has grown to be what it is. And in this sub-course I want to teach you something about the origin of some of the instincts that are found in our natures.

Many of the most powerful tendencies in the natures of higher peoples are *vestigial.* They are tendencies which were useful in the earlier and more primitive ages of the world, but which, owing to changed conditions, are no longer useful. They persist as parts of our nature in accordance with the same laws of survival which perpetuate the vermiform appendix, the ear muscles, and other useless parts of the human body. Darwin says that man has in his body about eighty different parts that are vestigial—eighty different parts that are of no use whatever. And it is very certain that there is a much larger proportion of our *natures* that is vestigial than of our bodies. We have a great deal of lumber in our bodies, but much more in our minds and natures.

Some one has said that "civilization wears a train." It does. And it is a very long one. It is composed of the ideas, beliefs, and institutions which have served men in the past, but which are today out of date and useless, but which we go on tolerating because we are not energetic enough to get rid of them. The world ought really to get out a new edition of itself every little while, leaving out the things that are useless and untrue and inserting new material that has come to it from the higher points of view.

Human nature is like everything else—it slowly changes. It is not the same today that it was a thousand years ago; and it is not the same today that it will be a thousand years in the future. We live in a universe where *everything* is *flowing*. Human nature, like everything else, slowly changes. But at any particular time human nature, like the human body and like human civilization, consists largely of parts which ought to have been abandoned long ago, but which survive because of our inability to revise ourselves and bring ourselves up to date. We are not entirely of the present. Much of us has come from the past and really belongs to the past.

It is exceedingly important that these survivals should be understood. It is still more important that they should be recognized beyond question as being *illegitimate*. The first five lessons of this Book form a series intended to teach these things.

The first lesson on "The Origin of Domesticat-

ed Animals" teaches that all domesticated animals have come from wild animals. It teaches also something about the world in which these wild ancestors of domesticated animals lived, and the kind of lives they led.

The second lesson on "Wild Survivals in Domesticated Animals" shows that a great deal of the wild ancestral nature still survives in domesticated animals—that, while domesticated animals have changed their surroundings, their natures are in many ways not changed.

The third lesson on "The Origin of Higher Peoples" shows that the higher races of *human* beings have also come from wild men called savages, just as domesticated animals have come from wild animals. This lesson tells also something of the natures of savages and the kind of world they live in, what they do, and the like.

Then, lessons four and five on "Savage Survivals in Higher Peoples" show that many traits of the natures of wild men still survive in all higher men.

2. Instincts.

An instinct is a natural tendency in a living being to do a thing in a certain way which has not been learned by experience. Instincts are inborn. We bring them into the world with us. Birds fly north in the spring, and south in the fall, in obedience to an urge or tendency in their natures to do so. They have *not learned* to do these things.

This tendency was born with them. It is a part of their nature. The mother bird and the mother cow and the mother human being are not taught to love their young. It is an *instinct,* one of the most beautiful in all the gray world of animal life.

I wonder if you have ever come upon the wild partridge with her young ones out in the forest and seen those little balls of down scatter like chaff at the warning cry of the mother. When they are no more than a day old and scarcely able to toddle, these little apologies of living beings will disperse at the distress signal of the mother as promptly and expertly as if they had practiced it for years, creeping under leaves and squatting in little hollows of the ground and lying there as still as stones, and looking so much like the dead leaves that it is almost impossible to find them, even tho one knows in a general way just where they are. These little souls were *not taught* to do this. They brought the instinct with them when they came out of the egg—along with their backbone, their downy covering, and their craving for food.

Instincts are useful. They take the place of reason and experience. Different species have different sets of instincts, but the members of the same species commonly have the same instincts. The *nature* of any species of animal is made up largely of the instincts or tendencies which it possesses and which urge it to put forth its energies in certain definite directions. The nature of

each species of animal is composed of a different bundle of instincts. *Human nature* is the name we give to the set of inclinations which we find in our own species. *Fox nature* is the name of the bundle of instincts found in foxes, and *horse nature* is composed of the urges and instincts which cause horses to do the things they do.

Fundamentally the natures of all the higher animals, including man, are much alike, just as the bodily structures of all the higher animals, including man, are fundamentally similar. All the higher animals have backbones, and ribs, and four-chambered hearts, and two lungs, and two pairs of limbs containing the same bones, and heads with eyes, ears, nose, and mouth occupying the same relative positions. And in the same way all the higher animals, including man, have *natures* prompting them to be anxious about their young, to be fond of their mates, to seek food when they are hungry, and to do their level best to live as long as they can. The dog, the cat, the robin, and the man, altho in many ways very different from each other in their natures, are nevertheless all alike in their eagerness to live and in their invariable preference of pleasure to pain.

3. Habits.

Habit has been called "second nature." And this is a very good name for it. *Habit is truly second nature.* Our *first* nature is the one we bring into the world with us. It consists of the inclina-

tions which grow up in us along with the early growth of our bodies; that is, our growth before birth. An *instinct* is a tendency to act in a uniform way which was *born with us;* a *habit* is a uniform way of acting which we acquire *after birth.* Our natural ways of acting may be modified by the habits which we acquire after we come into the world.

Habits are formed by *repetition*—by doing things over and over and over. If we lived in a world where things were never repeated, it would be impossible to form habits. The oftener we do a thing the greater the tendency to do it again. Repeat *anything* often enough, and it will become a habit, and, in time, harden into a fixed part of our nature. Life is filled with repetitions of all kinds—walking, writing, eating, playing, working, dressing and undressing, etc. After we walk, and talk, and eat, and work, and dress, and dream, and bathe, and write our names, hundreds of thousands of times, we fall into certain fixed styles of doing them. We come to walk in a certain way, and have a certain style of handwriting, and a certain way of speaking, and a certain order of putting on our clothes, and a certain set of favorite drinks and dishes, and a certain look and disposition. Some of these, of course, depend a good deal on our original nature, as, for instance, our looks and disposition. But even these are largely the result of habit. The face is largely the mirror of the soul. When we have a certain

feeling, as anger or joy, it shows itself in the face. And if a feeling is repeated over and over and over, it freezes—it becomes the common expression of the face. We can tell a grouch, a thinker, an optimist, or a wit by the general condition of mind which he advertises in his face.

These habits deepen with the repetitions of the passing years. In the early stages of the formation of a habit we may do a thing or not as we choose. But in the course of time it becomes very difficult or even impossible to act otherwise than we have formed the habit of acting. The habit becomes *master*. We form mental and moral habits, just as we form bodily habits. We get into the habit of thinking in certain ways and of believing certain things, and after we have thought these things over thousands of times we can't think any other way to save our lives. If we should think that the moon is made of green cheese *a million times,* we would probably never be able to think differently, however long we might live. You have each of you certain beliefs regarding politics, religion, education, etc., which you have because you grew up in a certain neighborhood and family. In many ways these beliefs of yours would be the very opposite of what they are if you had come into existence in a different family or neighborhood. It is a very serious business, this choosing of our parents and our place of birth; for what becomes of us as men and women depends a great deal on what sort of influences beat

in upon us and mold us during our earlier years. We may form habits of honesty or dishonesty, of kindness or unkindness, of truth or falsehood, etc., and as the years go by these habits will harden into character as certainly as the world goes round. If we could only realize while we are yet young how soon we shall become a mere walking bundle of habits, we would be much more careful as to what habits we fasten upon ourselves while we are still in the habit-forming stage. We begin at the wrong end of life. We just get ready to live when we are called upon to die.

4. Useful and Vestigial Instincts.

Useful instincts are instincts which we need in our business. They are the urges in our nature which cause us to go in the directions which are of advantage to us. Every animal has to do certain things in order to live and perpetuate its species. And the urges or inclinations which cause an animal to do what it should do are the *useful* instincts. Anything that an animal does that is not useful or advantageous is *vestigial.*

One of the things that used to puzzle me as a boy on the farm was the fierce nature that cows, horses, sheep, and other domesticated animals showed at the time young were born to them. We would go out to the barnyard some morning and find a cow with a young calf. She may have been the gentlest cow on the place, and one that ordinarily we could do anything with. But when she

had a young calf, look out. She was a different being. Cows vary a good deal in this respect, but nearly all of them at such times show some disposition to attack anything or anybody that comes too near their young.

I don't think as a boy I ever wondered *why* cows were this way. I didn't know enough. It merely seemed strange that a being would change so over night.

If I had asked any of the people who lived about there why cows were this way, they would probably have told me that it was "just natural." That is what we often say when we are asked about something we don't understand, and we don't want to admit that we don't understand it.

But *everything* is *natural.* There is nothing really that is not natural, that is, there is nothing that is not *a part of nature.* There is also an explanation for everything, if we can only find out what it is. And one of the things that you should get an early grip on and a good grip on is this fact—that *there is a reason for everything.* One of the chief delights of the intellectual life is the joy of rooting around in this complicated world and turning up the causes of things.

Domesticated cattle have come from wild cattle. And wild cattle live in a very different world from the one that domesticated cattle live in. They live among the forests and on the prairies surrounded by wolves and bears and other animals that are

enemies to them. Like all other animals, wild cattle are adapted to the world they live in. They have the kind of body that they need to enable them to exist, and they are provided with instincts pushing them this way and that and causing them to do the things they need to do in order to survive. They have large bodies and big powerful muscles. They have on their heads weapons of

THE MOTHER INSTINCT

defense in the form of horns. And wild cattle wouldn't last long in a world of wolves and bears without these weapons of defense.

One of the most important instincts in these wild races is the instinct to protect their young. A young calf when it first comes into the world is almost as helpless as a human baby in a cradle. And if there were not *some one* to take an interest in it and defend it, in a world where a hundred hungry mouths are ready to eat it up, the species would not last long. And those species have sur-

vived and prospered that have saved their young. And so, in many animals, generally in the mother, there has been implanted the instinct to love and protect the young of the species.

All domesticated animals have come from wild animals. Their surroundings have been much changed by domestication. They do not need to do the same things in human fields and pastures and barns and homes that they used to do in the wild life among the hills, forests, and prairies. Hence they have many instincts that are no longer useful to them but which survive, like the ear muscles and vermiform appendix in man, and like horns in domesticated cattle. They are *vestigial* instincts—instincts which were once useful but which, owing to changes in surroundings, are no longer useful and are now in the act of slowly passing away.

5. Vestigial Instincts in Man.

Man also was once a wild animal. We are domesticated animals, we higher peoples of the earth, or partially domesticated at any rate. All higher peoples have come from savage peoples. And if you trace savages back, you will find that they have come from still more savage and animal-like ancestors. The savage is the common ancestor of all higher men. And it is not possible to understand the things higher men do nor to account for the things that you find in their natures, unless you recognize the fact that higher men are

merely savages made over and only partially changed.

"Scratch a Russian and you will find a Tartar underneath," some one has said. The Tartars were the wild men from whom the Russians have come. And the saying, "Scratch a Russian and you will find a Tartar underneath," means that Russians are Tartars, except a thin layer on the outside.

It is the same way with all the higher peoples of the earth. Civilization is only a skin. The great core of human nature is barbaric. Humanity is only a habit—hardly a habit even, for we find it to be one of the easiest things to lapse into the old savage ways of thinking and feeling and acting. You cannot go very deep into even the highest men until you come to something so uncomplimentary that it has to be kept carefully in the background. If we were transparent and could look into each other and see all the thoughts and feelings that come and go in our innermost beings, we would then know much better than we do now what plated beings we really are and how much more shining and attractive we are on the outside than we are on the inside.

Human beings are not children of the sun. They are children of the jungle. We have in our natures many things that we would be a great deal better off without—instincts and ways of acting which we would never have included in ourselves in the world if we had had the privilege of choos-

ing just what was to go into our natures. These instincts and ways of acting are *vestigial.* They were useful to our ancestors, but owing to changes in surroundings they are not useful to us.

Savage peoples live in a different world from the world that higher peoples live in, and they do very different things from what higher peoples do. The savage is a child of nature. He lives much as other wild animals live. He has no domesticated plants nor animals. He subsists on the wild world. He hunts and fishes and fights for a living. He wanders about in small bands or tribes, maintaining himself by almost constant war with other tribes. He is ignorant, superstitious, and poor. He leads a hand-to-mouth existence. Life is filled with dangers, fears, and adventures. The moral law of the savage is the law that *might makes right*—the law that prevails among the fiercer orders of animal life everywhere.

The savage is adapted to the world in which he lives. He has the kind of body that he needs, and he has the instincts driving him to do the things he needs to do in order to maintain himself in the world.

The higher races of men have left the wild world of their ancestors. They live for the most part in an artificial, man-made world. Their occupations are peaceful. They are grouped into great cities and states, and maintain vast industries of agriculture, grazing, manufacturing, mining, and commerce. Life is *co-operative.* Knowl-

edge and wealth have accumulated enormously. Monogamy and more or less settled family relations have displaced the promiscuity of the savage and the animal. And, most important of all, the *Golden Rule* as a moral standard and ideal has taken the place of the savage standard of *Might*.

Hence the higher races have in their nature many instincts and ways of acting that are no longer useful to them. These instincts are *survivals* from our savage ancestors. They survive for the same reason that horns survive in domesticated cattle, and eyes in cave fishes, and ear muscles in men. They have gone out of use, but not long enough for them to have gone out of existence.

The vestigial instincts which survive in the nature of higher peoples from their savage ancestors are one of the chief causes of the immorality of higher peoples. You have heard of "original sin." What we call "original sin" is merely the name we give to the wrong-going caused by the vestigial instincts of our nature. We go wrong because we are driven in wrong ways by the left-over instincts of our ancestors. It has been said that the human heart is the gladiatorial arena of gods and beasts—the *gods* representing those higher, better, and more civilized, but newer, instincts of our nature, and the *beasts* representing those lower, older, and more animal-like impulses which tend ever to drag us down. It is of the utmost importance that these things should be un-

derstood. For our success as civilized beings and our right to be regarded as members of civilized society depend on the degree of ascendancy which we enable the higher and better parts of our nature to achieve over the lower. Our degree of civilization depends on how frequently we enable the "gods" in our nature to come out on top.

6. The Instinct of Fear.

This is one of the oldest instincts of this world. It existed long before man, and was inherited by him from pre-human ancestors. Fear first appears somewhere near the *worm stage* of animal development, and is found in all animals above this stage. Fear is the instinct to shrink from danger or enemies. It is the retreating or fleeing instinct. The lowest animals, those below the worms, are more or less indifferent in the presence of enemies. They act about the same toward enemies as toward friends. But higher animals are more discriminating. The instinct of fear causes them to promptly retreat from the presence of dangerous individuals. The instinct of fear brings a great improvement in animal behavior. It gives to those who have it a great advantage in the struggle for life over those who do not have it. It is natural to expect fear to appear very early in a world filled as full of danger and enemies as this world is.

Fear is aroused by the same beings that arouse the fighting instinct. Whether we run or fight in

the presence of an enemy depends on circumstances—depends on our judgment as to which activity would be the most profitable in the end. When we come into the presence of an enemy we are either impelled *toward* the enemy by the fighting feeling or driven *away* from the enemy by the feeling of fear. But the two feelings are entirely different from each other, even tho they may be aroused by the same object.

The world of early man was full of dangers and enemies. These enemies were not only far more numerous than now but relatively much stronger. For man originally was entirely unarmed; and for many thousands of years after he began to invent weapons he was much more poorly equipped than now. The progress from savagery to civilization is characterized by nothing more marked than *by the decrease in occasions for fear.*

Have you ever noticed a bird eating, or drinking, or taking its bath? It takes a bite, and then looks around. Then it will take another bite, and look again. It is always on the look-out for enemies. It almost sleeps with one eye open. It is pursued always by a pitiless state of *fear.* All wild animals have enemies, and they are able to maintain themselves in the world only by constant vigilance. Mr. Galton says that "every antelope in South Africa has literally to run for its life every day or two on an average, and that it starts or gallops under the influence of alarm many times in a day." Many animals that live in flocks

or herds have developed the practice of having certain individuals in the group act as sentinels while the rest are eating or sleeping.

Men originally lived in this state of constant

"EVERY ANTELOPE IN SOUTH AFRICA HAS TO RUN FOR ITS LIFE EVERY DAY OR TWO"

fear. They were always in danger of running into enemies of some kind—not only during their wanderings by day but especially at night when they slept. The savage is always suspicious, always in danger, and always on the watch. He can depend on no one, and no one can depend on him. He expects nothing from his neighbor, and does

unto others as he believes they would do to him if they got a chance. "The life of the savage," says Lubbock, "is one long anxiety, one long scene of selfishness and fear."

Today we sit down to our meals or lie down to sleep at night without a thought that we will be attacked before we get thru eating or sleeping. Thousands and millions pass their entire lives without much real occasion for fear—except from microbes, which are generally invited by slip-shod ways of living.

7. Survivals of Fear.

Loud and sudden noises startle us, merely because we have the nervous machinery which was manufactured to fit a world where loud and sudden noises meant real dangers. When we hide somewhere and jump out suddenly and seize some one, especially if our appearance is accompanied by a loud noise, our victim is certain to go thru the emotional performance of one who has been really ambushed. And the fact that we enjoy going thru the motion of ambushing some one that way is in itself a survival from the days when the ambush was the most common form of attack on others. Such make-believe attacks are successful because men still have to a certain extent the instincts of the ambush ages.

Strangers, whether men or not men, are especially likely to cause the feeling of fear. We shy at strangers and always have a certain uneasi-

ness in their presence which has no justification in the circumstances. It must be a survival from the time when strangers were *never friends,* but *always enemies.* We are especially afraid of important personages—of those who have figuratively the greatest power of good or evil over us. This *suspicion* is not useful today. It is in our way. It is a survival from the ages of justified fear.

The great fear which we have of snakes, spi-

"THE FEAR OF SNAKES COMES FROM THE FAR PAST"

ders, etc., is probably vestigial. It certainly exists today in unnecessary strength. The fear of snakes is probably an inheritance from the monkey. The monkey is mortally afraid of snakes. Put a snake into a monkey cage and the monkeys are terror stricken. Monkeys have been known to drop unconscious in the presence of snakes thru great fear. And no wonder. The snake is one of the monkey's worst enemies. The monkey can't kill a snake. The great tree-snakes of the tropics are deadly enemies of the monkeys. And before the invention of the club the snake was about as formidable an enemy to man as it was to the mon-

key. But as soon as man got the club or the spear in his hand, the snake was nothing. Man, unarmed, is a very feeble animal, and his supremacy in the world is due solely to the fact that he had the intelligence to arm himself.

Black things, and especially dark places such as caves, and even darkness in general tend to cause in us the feeling of fear. We are afraid of these things even when we *know* they contain no element of danger. But to the savage the cave was a lair, and darkness was a great big abyss filled with all sorts of things with teeth. When the sun goes down with us, we turn on the lights and prolong the day, indoors and outdoors; but when the sun went down on the savage, his eyes went out.

The fear which comes upon us in being "lost" is largely vestigial. A *lost* savage was in real danger. He was the legitimate prey of anybody or anything that came upon him. But being "lost" in a city or in a wood is much less serious than our feelings indicate. We feel much as we used to feel when being "lost" *was dangerous.* In all animals that live in groups (*gregarious* animals) there is an aversion to being alone. A writer says of the half-wild cattle of South Africa: "Altho the ox has apparently little affection for or interest in his fellows, he cannot endure separation from his herd. If he is separated from it by force, he shows every sign of mental agony. He strives with all his might to get back. And when he succeeds, he plunges into the middle of the herd

and fairly bathes himself in the feelings of companionship."

The fear of ghosts, goblins, and graves is a survival from the time when men supposed that about all the evils of life, even storms, earthquakes, and diseases, were caused by evil spirits. Primitive men believed that the spirit of the dead hung around the immediate vicinity of the body for some time after it left the body. We seem to retain some part of this belief in our half-assent to the theory of "haunted" houses and "haunted" cemeteries.

The instinct of fear is a useful instinct wherever life has dangers or enemies. And it is, of course, still useful in many ways to higher peoples. But there is much greater security among higher peoples than among lower peoples, and hence many occasions for fear have passed away.

We fear the things which our machinery (nature) is adapted to fear. And our machinery is adapted to fear the things we needed to fear in the savage world gone by, namely, thunder and lightning and snakes and solitude and strangers and darkness. None of these things now has much danger to civilized peoples, but we continue to fear them because of the survival of the old fear-producing machinery. Microbes are probably a thousand times as dangerous to human life and happiness as snakes are, but our "natural" impulse is to fear snakes much more than microbes. We love fighting rather than figures, and explora-

tion more than agriculture, and play and dissipation rather than useful occupations. Our machinery has never been made over to suit modern life and conditions.

8. The Fighting Instinct.

The fighting instinct is the instinct to contend and to overcome by force. It causes anyone who has it to act differently from what the fear instinct does. Fear urges one to retreat; the fighting instinct urges one to attack and injure and kill.

The fighting instinct is also an old instinct. It was not invented by man. It was presented to him by his pre-human ancestors, who fought and bled and died for millions of years before there were any human beings in the world. According to Romanes, the fighting instinct first shows itself in *ants and spiders*. It is, hence, not so old as the fear instinct, for the ants and spiders are somewhat higher than the worms and came into the world somewhat later.

As a general rule, it may be said that the *fighting* instinct is stronger in the higher and more powerful animals and the *fear* instinct in the lower and weaker species. Many species, like the deer, rabbit, mouse, and sheep, have adopted a different policy in the struggle for life from other species, such as the lion, wolf, and rhinoceros. The rabbit and the mouse *run* for their lives, as a general thing, because they are better at run-

ning than at fighting. They have neither great strength nor very good fighting implements. The lion and rhinoceros, on the other hand, follow generally the *fighting* policy, because they are equipped for it. Some species, therefore, are prevailingly *fleeing* species, and are dominated by the fear instinct, while other species are *fighting* species, and are ruled commonly by the fighting urge. But even the fleeing species contend more or less among themselves for the possession of food and other necessities of life. And in many passive species the males wage fierce war for their mates.

The animal kingdom has been reared in a gory cradle. This is especially true of man, who has fought his way to a supremacy in the world more bloody and complete than that hitherto achieved by any other species. The natural condition of early man was that of war—war with other men and with other animals. Peace was the exception. Every being outside of the tribe of the savage was an enemy and a legitimate object of plunder. There were alliances and counter-alliances. Men sought ever to be on the winning side. Hence the feebleness of human ties today among the higher peoples of the earth, and the insecurity of peace among the peoples of the world. The ally of today becomes the enemy of tomorrow, and the friend of the past becomes the foe of the present. This great facility we have for reversing our natures is an inheritance.

The fighting instinct survives in all the higher peoples of the earth. It shows itself in the frequent brawls and fisticuffs of boys, and in the wars of men. Peace becomes tiresome if it is too prolonged, and we have to "pitch into" somebody to get relief.

See how a crowd swarms about a street brawl. Let two boys begin to fight, and see how the other boys gather around in anticipation of pounding somebody by proxy, by seeing somebody pound somebody else. Look at the enormous sale of knives, revolvers, and other instruments of death. Does this show our civilization or our savagery? Even if a person has no idea of killing anybody or anything, it rather tickles his savage nature to realize that he is equipped to do it. See the ignoble crew that escorts every pugilist—parasites who feel that some of the glory of his brutality may in some way get rubbed off on them, and whose darling hope is to arrange a set-to so that they may share the pleasure without enduring the pains. The first blows at a prize-fight are apt to make a refined and sensitive spectator sick. But if he sticks thru the first round his blood is likely to rise in favor of one party or the other, and then he can't see the other fellow pounded and mangled enough to suit him (James).

I can remember how strong the fighting instinct was among the men and boys in that part of Missouri in which I lived as a boy. A man or a boy with a strong instinct to fight and with a strong

body to back it up was generally regarded as the one that the other men and boys would rather be than anybody else. If a bruiser could step off to one side at a gathering and announce in a loud, boastful voice that he could "lick" any one present, and nobody dared to say a word or raise a finger against him, *that* was the person every boy down deep in his heart wanted to be like when he grew up.

This same primitive atmosphere may be found today in certain circles in even the greatest centers of enlightenment of the race— in circles such as are found at drinking and gambling places. Drink tends to cause an individual to return sharply to the savage type by dethroning the reason and thus placing one more completely at the mercy of the lower instincts. The practice men have, and boys even more than men, of using their fists in fighting is a survival of the old style of fighting which prevailed among men before the invention of weapons. In fighting, the wolf uses its teeth, the buffalo its horns, the horse its feet, and the lion its paw. Man is like the lion, he strikes with his paw.

The war instinct lies pretty close to the surface in the natures of even the highest peoples, for it is a very easy matter to stir it to action even in times of profound peace. Let the newspapers print a few big black headlines and let somebody begin to blow the bugle and beat the drum, and we are ready to leap at the throat of

another people and find real satisfaction and much "glory" in the act. The sword is the symbol of savagery, but it is still an attractive object to the most nearly civilized people so far produced on earth. If people didn't like to fight pretty well, they would not go to war and spend millions in money and spill barrels and barrels of blood *over a trifle.*

During the recent war between Spain and the United States, some of the United States troops who had been sent to Cuba had had no real experience in fighting until peace was declared. I remember reading in the newspapers at the time a statement that impressed me very much. It said that when these troops were told that a treaty had been signed "the boys were very much disappointed." Why? Cuba was made free by the terms of the treaty, and the apparent purpose of the war had been achieved. Why, then, were they not satisfied? *Because they had something else to satisfy besides the desire to free Cuba.* It was the "war instinct." If these men had had a few battles, and in this way exercised their savage instinct to kill, and *then* peace had come, they would no doubt have come home satisfied.

The fighting instinct is weak in women and girls for the same reason that the hunting instinct is weak in the female nature—because it was the men (not the women) who did the fighting and hunting during those vanished ages in which the foundations of human nature were laid. The males in

many of the species of higher animals do most of the fighting. This is true in buffaloes, wild horses, deer, apes, and monkeys, and many other animals. A herd of buffaloes when attacked will get the females and young in the center, around which the males will form a ring with their heads outward to receive the attack. Men used to do the same thing in early times when attacked by Indians on the plains. They formed a ring with the women and children in the center. The greater size and strength of the males in many species is due largely to the fact that the males have been the warriors of the species.

The usual state of early man was a state of war. Peace was the exception.

The final condition of mankind will be one of unbroken peace. War will ultimately be unthought of—except as men read of it in history. As time passes the fighting instinct will grow weaker and more disreputable and the humane and sympathetic instincts will grow correspondingly stronger, and men will come at last to settle their differences in courts of reason and justice.

We live *today* in an intermediate stage of development. Peace is the prevailing state, but the fighting instinct still survives, and continues to break out in frequent duels between individuals and nations. It will be with nations as it has been with individuals. Individual men used to always fight out their differences. There were no courts of justice among the earliest men. It is now un-

SOME OF THE THINGS IN OUR NATURE THAT WE WOULD BE BETTER OFF WITHOUT

lawful for men to settle their differences by fighting. And only those who are behind the times use the fighting method. All higher men prefer reason and arbitration in courts of justice. In the course of time, the same thing will be true of nations. International differences will be settled, not by battleships and armed men, but by courts of justice and arbitration established by the nations.

9. The Hunting Instinct.

The lowest savage has no domesticated plants nor animals. He is a hunter. Like the wild dog and wild cat, he has in his nature an instinct urging him when he is hungry to go out and seek prey. But the savage never hunts for pastime. He hunts for a living. He takes the lives of the beings around him in order to use their bodies for food and clothing.

The higher races of men get their necessities of life by agriculture, mining, manufacturing, and the like. The hunting instinct is not exercised in the ordinary duties of life. But it exists. And on holidays and vacations, when we are relieved from work and can do as we please, we arm ourselves and go out and kill and kill, until we are satisfied. We kill, not because we are hungry, but in order to exercise or express an instinct which survives in us from our wolfish ancestors. We hunt because our ancestors were hunters. We kill other animals for the same reason that the dog

kills sheep—in obedience to an urge within us which has survived from the time when our ancestors were human wolves.

The hunting instinct is very strong in all the higher races of men. It is especially strong in boys. I can remember how it was in my own case. There were few joys of my boyhood more wild and overwhelming than the savage joy of laying things low. This is a mournful fact to find in the nature of beings who hold that the Golden Rule of life is to act toward others as you would have others act toward you.

The hunting instinct is closely related to the fighting instinct. Primitive man made war on *the universe,* human and non-human alike. To the savage, all those who did not belong to his crowd and were not on his side were enemies. They were to be used in one way or another, for food, clothing, or slaves, and if they were of no use they were to be removed anyway as competitors in the struggle for life.

Owing to the general preference for peace among higher peoples and the resulting scarcity of opportunities for killing *men,* many men today satisfy the fighting or war instinct by "hunting." War is not common enough to suit their natures. And, since they are deprived of the privilege of warring on others of their own kind, they go on occasional expeditions against "the animals." The condition of the warrior is similar to that of the trap-shooter, who bangs away heroically at

clay pigeons or glass balls, since the community has grown too civilized to let him kill real birds.

The hunting and fighting instincts combine to furnish the fascination which *atrocity* has for many minds even yet. Why do newspapers teem with accounts of murders and blood-lettings of various kinds? Because people like to read about them. Why do we like to read about such things? Because our ancestors were *beasts of prey*. The thirst for blood is very old—one of the oldest cravings of our nature. And this is why it is so slow in passing away—because it is so deep-seated and fundamental.

If the hunting instinct is not exercised, it soon dies out. And if the sympathetic instinct is cultivated by pets and by moral teaching, the individual will in time lose his desire to kill. He will come to derive greater pleasure from the care and study of wild beings than he will from taking their lives. In the majority of higher men today the instinct of sympathy is strong enough under all ordinary circumstances to keep down the hunting and fighting instincts. By practice this becomes a habit. In thousands of men and women the fighting instinct never gets beyond a momentary feeling of anger, with some slight threats or slight agitations of the body. The instinct exists, but is not strong enough to break thru the better instincts and send the individual charging on a mission of death and destruction.

Many communities have already passed laws

forbidding the grosser exercises of the hunting and killing instincts. And more such laws may be expected just as fast as men grow more enlightened. The slower footed members of a community are thus kept in check by the more enlightened members. So-called "trap-shooting," which consists in the massacre of birds thrown from a trap, is now forbidden by law in the more advanced states. One of the things that is going to brand us as barbarians, in the eyes of the future, is the indifference we show toward hunting for pleasure. Any one who wants to do so can arm himself and go out into the fields and shoot down birds and other inoffensive creatures, merely to satisfy this old savage instinct, and there is only an occasional feeble protest against it. Hunting for pastime is nothing but *murder*. And it should be forbidden by strict laws.

As time passes, the instinct of sympathy and humanity will grow stronger, and will become more and more dominant in human nature, and the vestigial savage instincts will grow correspondingly feebler. The hunter, who kills for pastime, is a connecting link between the savage, who hunts for a living, and the civilized man, who does not hunt at all. The hunter, like the warrior, will finally pass away forever.

10. The Tribal Instinct.

Savages live in *tribes*. The prevailing relation of one tribe to another is that of *war*. The moral

feelings and ideas of the savage are, therefore, purely *tribal* in their extent. The members of his tribe are to the savage for the most part his kinspeople. They are the beings with whom he has lived all his life, and they are to him the only real and important beings in the world. All others are *enemies,* to be attacked, robbed, deceived, murdered, eaten, or enslaved, as he chooses or is able to do.

There is always a tendency in us to think of the members of our own crowd as more real and important than other beings, and to consider our part of the world as the center and hub of the universe. This is especially true of simple-minded people. The bigger and broader we are the less inclined we are to be that way.

I lived once for three weeks with a family in a rather remote part of southwestern Alabama, about thirty miles from Mobile. These people thought that Mobile was the most important, if not the largest, city in the world. It was the only city they had ever seen and the only one they knew anything much about. One evening, in the course of conversation, I inquired the population of Mobile. No one knew exactly. But the mother thought that she had read somewhere that it was about a million. Later when I told them that Chicago had more people in it than Mobile and Birmingham and Montgomery and all the rest of Alabama taken together, and extended as far as the distance from where we were to Mobile, and

was something like forty times the size of Mobile, they fairly gasped with astonishment.

The Spanish people are said to read only Spanish newspapers and books, and to have very shadowy and imperfect notions of other peoples. They look to Madrid as the center of the world, and regard other peoples as inferior to themselves.

We Americans are somewhat the same way. We look with a kind of pity on the other nations of the earth, many of whom are recognized by everybody but ourselves to be in reality superior to us. I remember at the time of our World's Fair in Chicago of reading an article in a Belgian paper written by the Belgian representative at the fair, in which it was mentioned as a curious fact that Americans generally have the idea that they are superior to other peoples.

The narrowness and bigotry which have in all ages characterized the feelings and understandings of men, including the hostility existing in the international relations of even the highest societies of men today and showing itself in war and preparations for war, are merely the survivals in a more or less enlarged state of the tribal feelings of original men.

The ancient Greeks divided mankind into two classes: Greeks and "barbarians." The Greeks were the inhabitants of Greece, and the "barbarians" occupied the less centrally-located remainder of the world. The earth was supposed to be shield-shaped, with Mt. Olympus in Thessaly in its

exact center. This mountain, which is 9,700 feet high, was believed by the Greeks to be the highest mountain in the world. On top of this mountain the Greek gods were supposed to live. The Greeks believed that they were the descendants and favorites of the gods, and that the "barbarians" were mere nobodies intended to serve as conveniences to the Greeks.

The ancient Romans also considered all non-Romans as "barbarians"—including the Greeks. Many of the so-called "barbarians" were superior to the Romans, but they were always treated by the Romans with contempt. The "barbarians" were the "agricultural implements" of the Romans, and the butchers who killed each other for the pastime of the Romans on Roman holidays. A Roman could take the life of his "barbarian" slave as freely as we today kill cows.

Moral feeling has developed very greatly during the period of human history. Men today include within the range of their moral obligations many thousand times more human beings than the lowest known men do. This moral expansion has been brought about by the improved means of travel and communication, by railroads, telegraphs, telephones, and newspapers, and by the growth of the sympathetic imagination. When people get to mixing with other peoples, they find out that other peoples are very similar to themselves. They are in this way led to put them-

selves in the place of other peoples, and to treat them as they would themselves be treated.

But, except by occasional individuals here and there, moral consideration is by men not extended in a serious way beyond the boundaries of their own species. Non-humans are *outsiders*. They may be attacked, beaten, starved, killed, eaten, deceived, cut to pieces out of curiosity, or shot down for pastime. "Wild" animals, that is, those species which are not in any way attached to the "tribe," are especially destitute of all considerations of human justice and mercy. They are mere *targets* for anyone who wants to practice shooting.

The tribal instinct is the instinct to stand by one's group and to exaggerate the importance of one's place of living. It is the instinct of partiality—the instinct which prompts one to say: "My Country! May she ever be right. But right or wrong, my Country!" "Patriotism," as it is usually understood, is an expression of the tribal instinct. The *true* patriot does not believe that his country is the only country in the world, nor necessarily the best country; but he wants it to be a better country than it is, and he works to make it so.

"The *world* is *my country*," said Thomas Paine. Such words come from men whose sympathies are too big to be limited to any particular group of human beings. Any one who is completely recovered from the tribal instinct does not stop even at the bounds of his species, but is *a brother to all that feel.*

PART V.

Savage Survivals in Higher Peoples

(Continued.)

1. The Play Instinct.

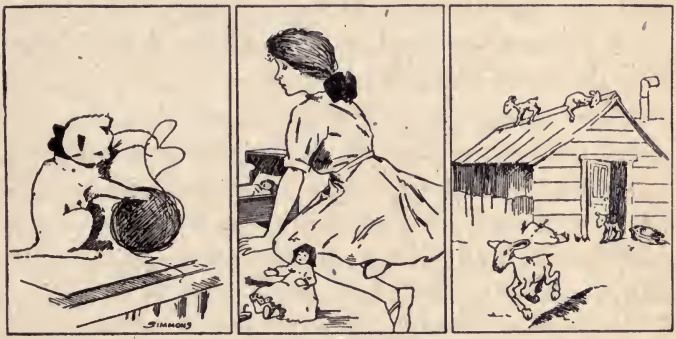
The play instinct itself is not vestigial in higher peoples. The instinct has its uses today the same as it had in the ages of savagery. But the general *form* of play among higher animals *is* vestigial.

Play is nature's schooling. It is preparation for life. The young of nearly all the higher animals play. And when they play they practice on the things they will do in actual life when they are older. Young dogs and wolves scuffle and chase each other when they play, because in after life they will be attacking and pursuing other animals a great deal in their business. A kitten likes to play with a spool or a ball. A spool is a "mouse." Young goats and sheep run and leap in their play. Their schooling (at least in the wild life) is to prepare them for getting away from the flesh-eating animals which later will chase them. Fishes play by darting and dipping, and monkeys by swinging and rollicking in the trees.

When we play we go to school—to the oldest school in this world—to a school which existed long before there were any school-houses or

school-ma'ams in the world, even long before there were any human beings on the earth. The wild goats went to school on the mountains and the wild cats in the woods for thousands and thousands of years before the alphabet and the spelling book were ever thought of.

But human plays are nearly all *battles.* They are preparation for a life of fighting and war. The modern world is largely co-operative. The ideals



"NATURE'S SCHOOLING"

of higher men are the ideals of *peace.* But our plays still retain their ancient forms. We still learn our lessons of life in the school of the savage. We practice for a life left behind, rather than for the actual life we are to lead. A game of football or baseball or cricket is a mimic battle between two tribes.

The young goat leaps a great deal in its play. It is developing strength and accuracy to leap from rock to rock. The young wild goat will have a great deal of running and leaping to do in later

years, when the hungry mouths and fleet limbs of the wolves are on its track. And it is very important for it to be very diligent in its studies, and learn well the lessons of fleetness and far-leaping.

But the domesticated goat is a lowlander. It will probably never see a mountain nor a wolf. But the children of these lowlanders continue to practice in their play for the wild mountain life gone by, just as the children of higher men continue to prepare themselves in their plays for the vanished life of the savage.

These savage forms of play are beneficial indirectly in building up the body and in developing ingenuity and shrewdness. But the reason why we use in our plays the forms of *running* and *fighting* instead of *computing* and *co-operating*—the reason why our plays are arranged to give us practice in *downing* people instead of *helping them up*—is because *the play instinct has never been modernized.*

The play instinct in boys takes a different form from what it does in girls, for the same reason that the play-forms of goats and wolves are different. They practice for different ends. A boy likes to ride a stick-horse and play ball and fight; a girl likes her dolls and her play-houses.

2. The Imitative Instinct.

This is the instinct which causes us to be inclined to do as others do—the urge to *copy* others

—in manners, dress, speech, walk, belief, occupation, etc.

The tendency to do as others do is much stronger in higher peoples than it needs to be. We often imitate others in spite of ourselves, even to our disadvantage, in obedience to an urge which survives in us from the past.

In all animals that live in groups or societies, that is, in *gregarious* animals, the conduct of each individual is determined largely by the conduct of the rest of the group. There is a certain *uniformity* in the conduct of the members of the group. If some of the members do a certain thing, there is a tendency in the rest to do the same thing.

In a school of fishes, if some of them dart away, the whole school will do the same thing without thinking. It is the same way with birds. They are each geared to do what the rest do, and they do it without thinking—often, it seems, in *spite* of their thinking. Once in a while when a flock of birds fly up, there may be one or two with originality enough to remain. But this is generally the result of repeated alarms of the same kind, and the ones that refuse to fly are the ones with more sense and strength of mind than the rest. Experience in this case modifies the original instinct.

Children are highly imitative. They are always copying those around them, especially those who strike their fancy or stand high in some way. The child will is not only weak but untrained. It is

largely composed of pure impulses. It is incapable of driving the individual in a definite and predetermined direction. It is wobbly and haphazard. The intelligence of the child is also undeveloped. It can't think. It believes whatever it is told. I have often noticed, when I have been out walking with children, how much they were inclined to cough or to expectorate when I did, to walk with their hands behind them when I did, to call out when I did, to adopt immediately any opinion I expressed; in short, to reproduce as nearly as possible in every way the copy I set for them. And I can recall myself how as a boy I used to be everlastingly trying to shape myself in accordance with those I from time to time took a fancy to.

The savage is in many ways a child. He has the same untrained will as the child, the same unsteadiness, the same tendency to be ruled by the impulses that rise within him from moment to moment, the same lack of experience, the same mental weakness, and the same dependence on others for cues as to what to do and think in life. Savages dress like each other, build their huts like each other, worship in the same way, and bow to the same customs and traditions.

Savages are natural mimics. They are able to imitate perfectly the sounds of other animals, and to repeat a sentence word for word that is spoken to them, mimicking the manner and voice of the speaker. There is a tendency in the nature of sav-

ages to repeat a question that is asked them, instead of giving the answer. While savages are excellent mimics, they bungle greatly if anything is left to their intelligence.

Fashions are exhibitions of the imitative instinct. Women are much more inclined to imitate each other than men are, because they have, on the whole, more of the characteristics of the child psychology.

There are fashions in ideas just as there are fashions in dress. If nearly everybody in a community believes in a certain way, it is almost as hard for any one of us to think differently from what the rest do as it is for a bird not to fly up when the rest do.

Independence, self-reliance, and originality are opposed to the imitative instinct and tend to weaken and displace it. These qualities indicate strength and maturity, just as the tendency to imitate others indicates weakness and inferiority. "The eccentricity of genius" is a common expression of the fact that persons of extraordinary originality are disposed to act in ways that are unlike those of ordinary people. I remember once of hearing Prof. Lester F. Ward, of Brown University, say that he came very nearly being mobbed one warm day in September when he walked down Pennsylvania Avenue, Washington, D. C., with a straw hat on. It was the custom to put aside straw hats the first of September, and the small boys and small-bore adults who gar-

nished Pennsylvania Avenue that late-summer afternoon didn't purpose to allow even a philosopher to be comfortable, if by so doing he violated the sacred usage of the tribe regarding straw hats.

It is often surprising to persons of progressive tendencies that men are so fixed and helpless that they go along year after year and age after age in the same old paths of prejudice, without ever being able to see other and better ways of looking at things. Reforms always move up-hill. Converting people to new ideas is like wearing away stone.

Mental evolution has not proceeded far as yet. Human reason (what there is of it) has grown out of animal instinct. Originality is so rare that it is almost discreditable. The foundations of human thinking are still largely instinctive.

Progress is not natural. We are geared to go round and round. The reformer should not expect too much. We are only as far along as we are. It is the nature of granite to be hard. And it is the nature of man to be mechanical.

No wonder we have such high regard for the past! No wonder we shake our heads at new ideas! No wonder we burn our geniuses at the stake! Considering the kind of beings we have been made out of, it is surprising that we are not worse than we are.

Imitation will not always be stronger than reason, but it is today.

3. The Instinct of Indolence.

Another survival from primitive times is the loafing instinct, *laziness,* the disinclination to expend large or sustained amounts of energy. Higher peoples put forth an immense amount of energy—in contending with each other in war and in overcoming and controlling the forces of nature along the various lines of human industry.

But our bodies do not generate energy in sufficient abundance for us to regard labor as a blessing. We don't work, as a rule, because we would rather work than not. We work because we would rather work than starve. Labor is a sort of necessary evil. We endure it because it is not so bad as some other things we would have to undergo if we didn't work. To labor as men do in producing civilization—in producing the food, houses, machinery, and luxuries of modern peoples—is not natural in the present stage of development of the human machine. It is a strained and artificial expenditure. This is shown by our fondness for holidays, by our constant search for labor-saving machines, and by the fact that we are all the time looking forward to a Golden Age in our lives when we can lead a life of leisure. We generally classify *toil* with *trouble* and *tears*—with the evil things of life, not with the good things. The Happy Places that men dream of for themselves after death are invariably places where there is not much work to do.

The instinct of indolence is a survival from

primitive men. The savage is not an energetic animal. His bodily machine produces a rather small amount of energy—merely the energy required for occasional hunting and war expeditions and for the creation of his rude weapons, boats, huts, etc. The life of the savage is a simple, indolent, hand-to-mouth existence, demanding few necessities and no luxuries. The savage doesn't use toothbrushes, and hence does not have to make them—nor easy-chairs, nor books, nor railroads, nor plum pudding, nor silks, nor automobiles, nor any one of the ten thousand other things that the higher races have got into the habit of considering necessary for a full, rounded existence. The savage eats wild fruits instead of chocolate creams, and walks instead of taking a Pullman.

So-called civilized peoples are always surprised, when they come in contact with primitive peoples, to find how indolent they are. They call them lazy and good-for-nothing, and assume that the savage is lazy rather as a matter of choice. Laziness is merely the state of being without energy. It is not a disease, nor an evidence of moral degradation. In a sense it is the natural condition of men, while industry is the derived state. The savage does not like to work because work is painful to him. He has not the apparatus to put forth prolonged exertion. Many primitive peoples can not be induced to do any kind of sustained labor unless they are driven either by the hunger or the sex impulse.

The native Australians are said to be "incapable of anything like persevering labor, the reward for which is in the future." The savage lives in the present. And he is unwilling to put forth exertions whose fruits are removed even a few weeks in time. A traveler calls the Hottentots of South Africa "the laziest people under the sun." Of some of the native tribes of India it is said that they have not only a distaste for labor, but a contempt for it, and will starve rather than work. Many tribes of American Indians, when cut off from their hunting life, quickly disappeared, because they were incapable of maintaining themselves by labor, as the higher races do. Burton says of the Dakota Indians: "The warrior considers the chase his share of the curse of labor. He is so lazy that he will not rise to saddle or unsaddle his pony. He would rather die than employ himself in useful industry."

Higher peoples are a great improvement over savages in the amount of energy they are able to produce. But they have not yet developed sufficiently in energy-producing power to *enjoy* the amount of work they are ordinarily called upon to do.

In the better times to come labor will not be looked upon as something to be avoided if at all possible to do so. It will be natural and pleasurable. Laziness will pass away—just as cruelty and killing will pass away. The human body will grow more and more dynamic (energy-produc-

ing) with the passing of the centuries, and the present haphazard system of assigning men and women to their occupations will give way to a plan by which each person will do what he likes to do and is best fitted to do.

I don't suppose the bee dreads work. It has in full measure the energy which it needs in its busi-

"THE BEE DOES NOT DREAD WORK"

ness, and all it has to do is to direct its energies in the direction in which they should go. Some time we human beings will be as naturally industrious as the bee—unless we find out before that time that we don't need so many things in order to be happy and hence don't need to wear our lives out in making things to be happy with.

4. The Instinct of Revenge.

Revenge is the desire in an individual who has been injured to do injury in return. It is the hunger to hit back. Revenge prompts us to inflict on any one who has injured us an amount of injury at least equal to what we have suffered. And if the injury we return is a little more than what we have received, our satisfaction is that much more complete.

Among all higher peoples, forgiveness is generally regarded with real admiration. Forgiveness is the passing by or ignoring of wrongs that have been done to us. Human nature is weak. We do so many things without thought or intention. It is a mark of greatness not to judge people too literally. It was said of Abraham Lincoln that his heart was as big as the world, but that he had no room in it for the memory of a wrong. A being who is immense enough to realize the frailties of human nature will not judge men harshly, but will look with an all-pitying tenderness on the erring children of this world.

What a beautiful mantle Charity is to throw over the misdeeds of men. Charity is the disposition to put a good construction on men's actions and to overlook their faults.

But charity, forgiveness, and the Lincoln-like spirit of forgetting wrongs are not in harmony with the tendencies which we commonly find in the hearts of men when we look into them. A blow arouses a burning desire to hit back—even

in those elite beings who realize that charity and forgiveness are more beautiful than revenge. Like so many other tendencies in our nature, which drive us this way and that in spite of ourselves, this instinct of revenge is a survival from savage times, when men lived in a state of militancy and hate and when the policy of a-blow-for-a-blow was much more justifiable than now.

The struggle for life among primitive beings is carried on largely by fighting. Every fight is a succession of retaliations—bite being given for bite and blow for blow. These retaliations may follow each other in quick succession, or they may be postponed. A postponed retaliation is what is called revenge. The postponement may be merely long enough for the combatants to get their breath, or it may be for days, or it may be even for years. The feeling of revenge is, therefore, a close relative of anger, revenge being a sort of sustained or adjourned anger.

Among all primitive peoples the practice of revenge not only exists, but is regarded as more or less of a duty. Any one who fails to revenge himself on an enemy is despised as a coward. If a savage should forgive his enemies or do good to them that spitefully use him, he wouldn't be tolerated very long, even by his own people.

It is said of the natives of Australia: "The holiest duty a native is called on to perform is that of avenging the death of his nearest relatives. Until he has fulfilled this task, he is constantly

taunted by the old women; if he is married, his wives quit him; if he is unmarried, not a single young woman will speak to him; his mother constantly laments that she has given birth to a son so craven; and his father treats him with reproaches and contempt."

The Kukis, an Asiatic tribe, are even more fanatical. "Like all savage peoples, the Kukis are of a most revengeful nature. Blood must always be shed for blood. If a man is killed by the accidental fall of a tree, his relatives assemble and reduce it to chips."

As a general rule among primitive peoples, the injury of one member of a tribe by another is not a matter of public concern. It is a matter to be settled by the two individuals concerned, or by their families. The chief of the tribe takes account of those offenses only which concern the interests of the community generally. The avenging of private injuries is left to the individual.

It is said of the Indians of the Caribbean islands: "The administration of justice is not exercised by any magistrate or judge; but he who thinks himself injured gets such satisfaction from the offender as his passion dictates or his strength permits him to obtain. The public does not concern itself at all with the punishment of criminals. And if any one suffers an injury or an insult and does not revenge himself for it, he is slighted by all the rest."

Among the North American Indians generally

if a man were murdered the relatives of the murdered man were the only ones who had the right to do anything about it. They usually came together at such a time and consulted about the matter, and decided what punishment or revenge should be inflicted on the murderer. The rulers of the tribe had nothing to say or do in the matter.

In ancient Greece there were no officers whose duty it was to prosecute criminals. "Indeed," says Lubbock, "it seems that the purpose of courts of justice was at first not so much to punish offenders as to restrain the fury of the avengers."

The right of revenge has been gradually limited with the passing of the centuries. Laws have been passed from time to time prescribing in what cases the right should or should not be exercised, and the extent to which punishment should be inflicted. Today, among all higher peoples, courts of justice have been established where any one who is injured by another can go and make his complaint, and receive satisfaction thru the decrees of a judge. This is, at least, the *theory* of courts, altho in *practice* courts are not always just. The judge is generally assisted in making his decisions by a jury who listen to the evidence on both sides and then give their verdict. Individuals are not authorized to "take the law into their own hands."

There are many vestigial survivals among higher peoples of the old primitive practice of al-

lowing individuals to settle their differences themselves. The *duel* is one of these. The *vendetta* is another. The vendetta is a private blood-feud in which a family seeks to avenge an injury to one of its members by injuring the offender or his family in return. This half-savage form of so-called "justice" prevails in Sicily, Sardinia, and Corsica, and, to a considerable extent, under the name of "feuds," in the mountainous parts of Kentucky, Virginia, and other southerly states.

The instinct of revenge, which we find in our natures and which we see manifested even in the decrees of courts of justice and in the theories of punishment of all higher peoples, is a vestigial survival from the natures of our savage ancestors. It had its origin in those warlike times of early man when every individual was compelled to fight and to inflict injury-for-injury in order to maintain himself in the world. We continue to feel this instinct today and allow ourselves to act upon it, even tho our moral ideals prompt us to be patient and forgiving and charitable, because the machinery of our nature is so old and has been going round and round so long in a certain way that we can't stop it.

Our natures are not *modernized*. And one reason why we are not modernized is because *we do not realize* that we are so largely out-of-date. Many instincts of our nature are adapted to a state of the world that has passed away. We have many promptings within us that we do not need.

We have within us many impulses that have no business to be there. And the purpose of these lessons is to teach you the existence of these impulses, and that it is your duty as civilized beings to crush them. These impulses are the "beasts" of our nature, and contend constantly with our better impulses for mastery. They are older and more fundamental and often more powerful than our better impulses, and drive us to do things in spite of our better selves. But it is of great advantage to us in this struggle to understand the origin and nature and the dishonorable character of the forces with which we contend.

5. The Selfish Instinct.

Selfishness is regard for oneself—partiality toward that part of the universe which is bounded by one's own skin. It is the general nature of men to disregard the Golden Rule—to treat themselves more considerately than they do others. The Golden Rule commands us to have the same interest in others and the same enthusiasm for the well-being and prosperity of others as we have for ourselves. But our machinery is not built for this kind of conduct. It is merely another one of those many inconveniences which we find in our natures resulting from our lowly, animal origin.

Selfishness may consist simply of regard for oneself, but with regard for self is usually associated a disposition to do injuries to others.

Selfishness is a general term. It includes such

qualities as cruelty, hate, intolerance, rudeness, unkindness, injustice, narrowness, and the like. Selfishness is often called *Egoism,* from the Latin word *Ego,* which means *I.*

The opposite of selfishness (or Egoism) is Altruism, which means *regard for others.* Altruism shows itself in such qualities as kindness, sympathy, charity, forgiveness, love, pity, public spirit, fraternity, courtesy, generosity, patience, justice, and the like.

In the *ideal* human being there is the same amount of regard for others as there is for oneself, and the same amount of regard for self as for others. There is a *balance* of Egoism and Altruism. The Ideal Man obeys the Golden Rule. He treats others with the same regard as he would if they were a part of himself.

The over-amount of selfishness in human nature is the one great misfortune of mankind, for it leads to nearly all the wrongs that men inflict upon each other. But it is not simply a *human* misfortune. The same condition exists in the natures of nearly all animals. Everywhere on earth, from the dwellers in the deeps to the feathered spirits of the sky, we find individuals seeking their own satisfactions and their own ends in disregard of the ends and satisfactions that others are seeking. Hence, the universal war, and hence the war-like natures found everywhere in the world. The planet is steeped in selfishness and inhumanity.

But we higher beings of the earth have found

out that might is *not* necessarily right. We are learning that it is better to co-operate than to go on wasting our energies fighting each other. We believe it is better to make a treaty of agreement, by which each is allowed a fair share of the enjoyments and privileges of the world, than it is for each to continue to try to have his way and to get everything for himself. And the Golden Rule—*Act toward others as you would act toward a part of yourself*—represents this Great Treaty of Peace which the most nearly civilized men are in the act of agreeing to.

The over-regard for ourselves, which we find in our natures, is, therefore, another survival from the dark ages of savagery and animality out of which we higher peoples have come. We higher peoples are trying to live lives of *peace* and *co-operation,* but we find it very hard to do so and we are at best only partially successful, because we have left in us so much of the machinery of savages and beasts.

6. Other Vestigial Instincts.

There is one thing that should be very vividly realized in order to understand why it is that there are so many instincts left over from the savage that are not needed by us higher peoples—in other words, in order to understand why it is that there are so many things that were natural and proper for the savage to do that are regarded by us higher peoples as wrong.

The savage lives as a member of a *tribe* composed commonly of a few hundred individuals. The world, to the savage, is the world in which he lives and moves—the world which he feels, hears, tastes, and sees. It is the only world he knows anything about. To the savage, the horizon is the boundary of the universe. Beings beyond his tribe are outside of his world. They belong to an entirely different order of beings from him and his people, and he assumes an entirely different attitude toward them. They are not of kin to him, speak a different language, and have strange customs and superstitions. How could they be in any way related to him? They are his *enemies*—vague, villainous beings who appear to him only in battle. His chief occupation is to wage war against them, to plunder them, deceive them, and make slaves of them. And his keenest gratification is felt in getting the better of them in one way or another and in laying them low in battle.

The attitude of the savage is an attitude of hate and hostility to all who do not belong to his particular crowd. Everybody outside of his tribe is his lawful *prey*. He is at liberty to do anything in his power to anyone outside his tribe. His ethical attitude toward "outsiders" is almost the *reverse* of his attitude toward the members of his band.

Stealing is not immoral to the savage, if it is carried on against those outside his little group. It is a means of distinction. The same is true of

lying and *deceiving* and *cheating*—and even of *murdering.*

Higher peoples, on the other hand, form vast communities called *states,* comprising many millions of human beings. These states often cover territory that is continental in extent. Moreover, they are all united, by treaties, by commerce, and by ties of sympathy and understanding, into one vast, world-wide confederacy.

The savage is a citizen of a tribe. His fellow-beings consist of a few hundred individuals. All the rest of the inhabitants of the earth are his enemies. *We,* on the other hand, are citizens of the *Civilized World.* We have really *no enemies* in the old sense. *Nobody* is our legitimate *prey.* But we have surviving in our natures the instincts to *steal* and *lie* and *cheat* and *deceive,* and to treat others generally as if they *were* our *prey.*

This metamorphosis of the world in general from *objects* of *prey* to *fellow-citizens* is an exceedingly marvelous one, and must be realized in order to understand the many errant tendencies which we find in our natures today.

Courage and loyalty are the two chief virtues of savages. *Loyalty* is the tendency to stick to an individual or to one's group thru thick and thin. And so long as mankind was divided into small, warring factions (tribes), this quality of loyalty was a much-lauded one. But the breaking up of tribes, and their fusion into great masses of men called nations, and the further unifying of na-

tions thru international travel, commerce, and treaties have reduced very much the occasion for loyalty—at least, the occasion for *local* loyalty.

The old savage style of loyalty is still to be seen in the spirit shown by certain groups of lawless and near-lawless individuals who engage in wrong-doing and then stand by each other as the only way of enabling the gang to escape detection. A member of a gang of criminals who "squeals" or "snitches" on the rest is, from the standpoint of the gang, an evil individual—a criminal. But from the higher standpoint of society, he is an upright citizen. He does just what he should do.

The "loyalty" often shown by children in refusing to "snitch" on one of their number who is guilty of wrong-doing is the same kind of "loyalty" exactly as that which is so highly praised by law-breakers everywhere. Any one who aids in concealing crime or disorder by refusing or neglecting to give information regarding such wrong-doing assists in making wrong-doing easier, and is, hence, to a certain extent responsible for it. Boys and girls who shield one of their number in disorder cannot escape a share of the guilt. They are acting under a mistaken sense of loyalty. They are promoting disorder. The obligation of friendship does not extend to the protection of a friend in crime. There would never be any apprehension of criminals if everybody who knew of the crime were "loyal" to the criminal.

7. Some Newer Instincts.

Human nature is a growth—an accumulation. The elements which compose it have been added one after another. Some of these elements are very old and fundamental, while others are more recent. As has been already shown, many of the instincts which we find in ourselves are pre-human in origin, and existed in the world millions and millions of years ago, before there were any human beings in it. We human beings obtained these instincts by inheritance from our animal ancestors, just as we obtained our backbone and other features of our body. We human beings did not invent the backbone. We inherited it from the lower mammals, who inherited it from the reptiles, who inherited it from the frogs, who inherited it from the fishes, who originated it. In the same way the instincts to kill and fight and play and be afraid and to love young were developed in our pre-human ancestors millions of years before human beings were ever dreamed of.

Many savage tribes have no words for *sympathy, justice, chastity, temperance, humanity, modesty, gratitude, forgiveness,* or *remorse,* showing that they have no ideas, or, at least, no well-defined ideas, of these virtues. The earliest men, of course, must have been much like the non-human animals from whom they developed, acting more or less blindly, and without the understanding, forethought, and trust which we think of as characterizing the conduct of *humans.*

Modesty is an instinct causing us to conceal certain parts of the body—among higher peoples the most of the body excepting the hands and head. It is certain that non-human beings do not have this instinct. Neither do very young children. There are also millions of primitive men living in tropical countries who wear no clothes at all, and hence have no feelings of modesty.

Modesty is largely a matter of habit. Turkish women cover even their faces. Modesty has originated during the human era of development, as a result of the delicacy and restraint of the sexes toward each other.

Romantic love, the delicate and prolonged wooings of courtship, are unknown to the savage. The love affairs of primitive peoples are more like those of other animals. They are wanting in that tenderness, beauty, and romance which characterize the courtships of higher peoples.

Cleanliness is another instinct which has grown up since savage times. Primitive peoples have no aversion for dirt. They are naturally filthy. In higher peoples the instinct of cleanliness affects not only their persons, but extends to their homes, streets, fields, places of business, etc. Cleanliness is a feature of modern *art.* The artist is the most likely person to be neat and clean about himself, his room, his home, and his world.

Gratitude is an instinct which is weak even among higher peoples, and it is almost absent in savages. Of the Eskimos it is said: "They give

away nothing themselves without expecting to receive as much in return, and, being unable to imagine any other conduct, are naturally very deficient in gratitude." Giving, if it is pure, is an act of the heart. It is *generosity*. It is an expression of sympathy and love. There is no expectation of anything in return. But among primitive peoples giving is mere *trading*.

Owing to the operation of the Law of Biogenesis, which compels each being in its individual development to pass thru the stages of its ancestors, the children among the higher races of mankind have (like savages) very little or no feeling of gratitude. A child will receive any number of favors or the benefits of any number of sacrifices without feeling a particle of thankfulness for them. For a long time after it learns to say "thank you" without having to be prompted by its mother, the child has *no feeling* of thankfulness corresponding with the words. It is not sincere. Boys and girls even of considerable years will accept the most valuable courtesies from others, and then forget all about these courtesies in a few weeks or months. Even in adults it is a very common thing for courtesies to be appreciated so feebly as to be forgotten in a few weeks. And nearly all giving is still adulterated a great deal with the *trading* spirit. It is not pure.

Some forms of *sympathy* are very old. The sympathy of a mother for her child is prehuman. We find it well developed in birds, bears,

monkeys, dogs, whales, mice, and many other non-humans.

Even sympathy between adults *begins* low down. A dog will lick another sick dog. Romanes had a dog that objected to the whipping of other dogs, and to the use of the whip on the horse when he went out driving with his master. Monkeys also have considerable sympathy for each other, especially in times of sickness.

Savages have some sympathy for each other, but as a general thing the feeling is weak. This is shown by the not uncommon practice they have of killing off their old people in times of famine. "Old women no good; dogs kill otters," is the way one savage expressed it. The ancient Romans used to take their hopelessly sick slaves to an island in the Tiber and let them die of hunger and exposure.

The instinct of sympathy in higher peoples is much weaker than many of the older instincts, as, for instance, the hunting and fighting instincts. These latter instincts, when aroused, will overcome the instinct of sympathy completely. Let the "savage" within us once get the smell of blood, and it is all over with our sympathies. The more recent acquisitions of human character are like tender plants growing in a forest; they are often choked by the more venerable instincts which overtop them.

The great growth of sympathy in higher peoples is shown in their sensitiveness to the wrongs

and sufferings of other peoples. A great calamity in one part of a country or even in a foreign country sends a shudder over the rest of the country and even to foreign countries. People pour out their services and their money for the afflicted almost as they would to brothers. It is beautiful. The systematic and public care of orphans, the old, the blind, the deaf, and the crippled is another vast expression of sympathy.

As soon as we get far enough along to rearrange our system of industry so as to give everybody a somewhat equal chance to live and enjoy life, we shall give another vast expression to human sympathy, and a much-needed one. We *cooperate* in *producing* what we need, some of us doing one thing and others doing another thing, but the *distribution* of the products is *haphazard* and *primitive.* It is much as if we should all go to work and make a bagful of things that we need, everybody working hard to get the bag filled, and then engaging in a general scuffle and fight to see who is to get what is in the bag. The strong and the selfish get more than they need, and the weak and modest get little or nothing. This shows a lack of both sympathy and sense.

Conscience is sometimes called the "moral sense." It is that within us which assists us in recognizing *right* and *wrong.* Conscience is very weak in savages, many of whom have almost no ideas of right and wrong. "Conscience," says Burton, "does not exist in East Africa. And re-

pentance means merely regret for missed opportunities for crime. Robbery and murder make the hero, and the more atrocious the crime the greater the hero."

Darwin calls conscience "the most noble of all the instincts of man." It is the one instinct which more than all others distinguishes man from the other animals. Man can thru long cultivation of his conscience acquire such perfect mastery of himself that his desires and passions will yield instant and perfect obedience. The hungry man will not think of stealing food, nor will the injured man wreak vengeance—except in special cases. In the Ideal Man, all other instincts are slaves to the Imperial Instinct of Conscience—*all appetites are dumb when Duty speaks.*

The *desire for progress,* both individual and racial, is lacking in savages. Many savages are today in the same condition as when first discovered several centuries ago. We are apt to think of progress as a natural condition of mankind, but this is not true. The ancients did not even entertain the idea. And even today large parts of mankind show no desire whatever for the improvement of themselves, their customs, or their institutions. Even among higher peoples the reformer is often looked upon with suspicion as a disturber of the peace. There is a fundamental tendency in human nature to stand still, or, if not to stand still, at least to go round and round. This tendency is thoroughly dominant in the savage.

The savage *takes pride* in building his hut in the same way that his ancestors built theirs, and in thinking the same thoughts that his ancestors thought a thousand years before him. Sir Samuel Baker, in a paper on "The Races of the Nile Basin," points out that each tribe of men in Central Africa has its own peculiar style of hut, and that the huts of various tribes are as constant in their types as are the nests of birds. The same thing is true of their dress, language, customs, and religions. The Creek Indians laughed at those who suggested that they should change their long-established customs and habits of living. "Because same ting do for my father, same ting do for me," say the Houssa negroes. Livingstone says of some of the natives of Africa: "I often presented them with iron spoons, and it was curious to observe how the habit of hand-eating prevailed, tho they were delighted with the spoons. They would lift out a little milk with the spoon, but instead of putting the milk in their mouths with the spoon, they would pour it into their left hand, and eat it out of that." Tylor says that the Dyaks (natives of the island of Borneo) were so opposed to any changes in their usages that they made it a finable offense for any one to chop wood in the European fashion. It is only *some* races that are able to flow and to regard flowing as an appropriate activity for human beings; and only *some men* of these special races.

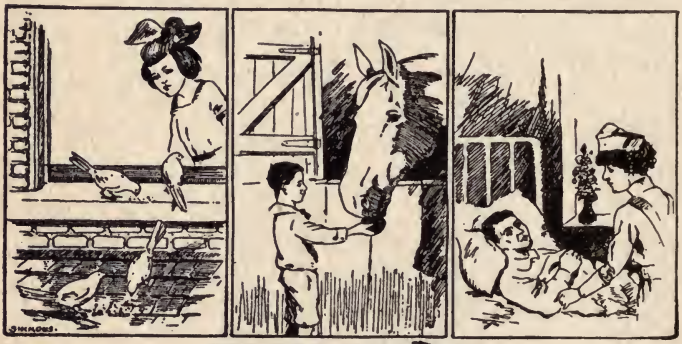
There is no instinct in human nature that has made greater growth during the human period than the instinct of *humanity*. Humanity means brotherhood—the spirit of the family. *Men are brothers.* And they should have for each other that fellow-feeling, that feeling of sympathy and oneness, that brothers have. We have all come from the same great womb of life, we have the same susceptibilities of pleasure and pain, the same frailties, and are advancing all of us to the same ultimate destiny. We should take each other by the hand. We should be *comrades.* This is a gray world. There is enough sorrow in it, even tho we cease to scourge each other—the sorrow of floods, famines, fires, earthquakes, storms, diseases, and death. We should trust each other, and love each other, and sympathize with and help each other, and be patient and forgiving. For do we not know how divine these things are when they are done to us?

The following is from Darwin:

"As man advances in civilization and small tribes are united into larger communities, the simplest reason should tell each individual that he ought to extend his sympathies to all the members of the nation, tho personally unknown to him. This point being once reached, there is only an artificial barrier to prevent his sympathies extending to the men of all nations. But, unfortunately, experience shows us that, if such men are separated from us by great differences in appear-

ance or habits, it will be a long time before we look upon them as our fellow-creatures.

"Sympathy beyond the bounds of man, that is, humanity to other animals, seems to be one of the latest acquisitions. It is apparently unfelt by savages, except toward their pets. How little the old Romans knew of it is shown by their revolting gladiatorial exhibitions. The very idea of humanity to animals, as far as I could observe, was



"THE SPIRIT OF HUMANITY"

new to most of the Gauchos of the Pampas. This virtue, one of the noblest with which man is endowed, seems to arise from our sympathies becoming more tender and more widely diffused, until they are extended to all sentient beings. As soon as this virtue is practiced and honored by a few, it spreads, thru example and instruction, to the young, and eventually becomes incorporated in public opinion."

Humanitarianism is the name commonly given to that higher humanity which embraces the whole

animal kingdom, or as much of it as gives evidence of *feeling*. Humanitarianism is the final goal of human sympathy. Starting with the tribe (or the family, or even the individual), the instinct of sympathy has spread from tribe to confederacy, from confederacy to nation, from nation to race, and from race to species. It is constantly growing and deepening among the sub-divisions of the human species and is as constantly extending to the non-human populations of the earth. It is destined finally to reach the remotest shores of the Great Ocean of Feeling. Wherever there are bodies that bleed and souls that mourn, there human sympathy should go, angel-like, with its sweetness and healing—down even to those lowly and overlooked but suffering-and-enjoying civilizations beneath our feet, in the grasses and grounds and the crystal deeps.

8. Vestigial Customs and Institutions.

Men are like sheep. They do things and think things, not because the things are useful and true, but because they have been done and thought by others who have gone before. They imitate their ancestors. Each generation of men jumps over the same hurdles that preceding generations have jumped over, altho in most cases the usefulness of the activities, if they ever had any in the first place, has long ago passed away. *It is the call of the past*—the oldest and most hopeless of human slaveries.

Civilization is a train. It drags along with it a

great many things that belong rightfully in the past—not only vestigial instincts, but also vestigial *customs, beliefs, ideals,* and *institutions.*

Customs are much like instincts. They are established ways of acting which are observed by all the members of a tribe or nation. They may be called tribal or national habits.

It is commonly supposed that the savage, living as he does in the world of nature, has the advantage over the more civilized of being able to do as he pleases. There cannot be a greater mistake. The savage is nowhere free. All over the world the daily life of savages is hedged about by customs and rules, which are none the less stringent because unwritten. "Fashion in the distant wilds of Africa," says a writer, "tortures and harasses poor humanity as much as in the great prison of civilization."

The Australian savage cannot even do as he likes with what he kills when hunting, but must allot it according to strict rules, one leg to one member of the family, one to another, the breast to a third, and so on.

Among the Mbayas of South America "the married women are not allowed to eat beef nor monkey, and the girls are forbidden to partake of any meat or fish that is more than a foot long."

Among the Samoyedes, women are not permitted to eat the head of the reindeer nor to pass across the hut behind the fire.

Public business among uncivilized and semi-

civilized peoples is conducted with tedious formalities and a strict observance of the forms which have been handed down to them. Any changes in the established ways of doing things are strongly opposed.

Here, in this natural conservatism of the savage, in his tendency to cling to established rules and customs, we find the explanation of the reverence which higher peoples have for whatever has come

"FOLLOWING THE LEADER"

down to them from the past. *We have not yet recovered from the tendency of the savage to stand still.*

The practice higher peoples have of imitating each other in their dress is stupid enough to have come right out of the heart of Africa. Why do women wear barn-door hats and tubular skirts and make themselves generally clownish in their dress? Merely because other women do it. They haven't enough taste and originality to dress be-

comingly, unless everybody else does so. If the time ever comes when women develop a real sense of art, they will refuse to dress like freaks merely because others do.

The word "decimal" is an adjective derived from the noun *decem,* a latin word meaning *ten.* The Decimal System is the name of our system of numbers, which is so arranged that ten of a lower order make one of the next higher order—ten units make one ten, ten tens a hundred, ten hundreds a thousand, and so on.

Why do we have a system of *tens?* Why not a system of eights, or fives, or twelves? Do we have the ten-system because it is the best system? Or has it been fastened upon mankind by some circumstance somewhere in the past? We grow up using the ten-system; we never know of any other system; and the most of us are so mechanical that it never occurs to us that there could possibly be any other system.

The decimal system of numbers is not the best system. It was adopted by mankind as a result of certain circumstances far back in the early stages of human development.

Before there was any science of mathematics—before geometry, trigonometry, algebra, or even arithmetic existed—men counted on their fingers. They couldn't count in their minds, and they had not yet invented figures and other mathematical signs. The fact that mathematics had its beginnings on the fingers and that man has ten fingers

are the circumstances which produced and fastened upon us for probably all time our numerical system of tens.

If man had had four fingers on each hand instead of five, we would today probably have a system of *eights* instead of a system of tens. And a system of eights would have been just as good as a system of tens, or perhaps a little better. And, if man had had six fingers on each hand instead of five, there is no doubt but we would today have a system of *twelves,* a duodecimal system, which would have been a considerably better system than the one we have.

A system of twelves would be a much more flexible system than a system of tens. Ten is divisible by 2 and 5 only, while twelve is divisible by 2, 3, 4, and 6. Counting in a decimal system must be either by ones, twos, fives, or tens, or by some multiple of ten; but in a duodecimal system we could count by ones, twos, threes, fours, sixes, twelves, or multiples of twelve.

When we speak of "three-score and ten," we are counting by the old vestigial finger-method, each score standing for 20, or, as a Mexican or Carib Indian would put it, for "one man," that is, for the number of fingers and toes that one man has.

Greek and Latin are vestigial languages—languages which have gone out of use, but which have not yet gone out of existence.

Silent letters are the vestigial parts of words.

In general all silent letters were once sounded. But thru changes in the nationality of words or in the habits of those using them, many letters have fallen into disuse.

Take the word *knight*. The *k* and *gh* are silent. But our ancestors pronounced them, as the Germans do today their word *knecht*. So in the French word *temps*, meaning "time." The *p* and *s* are silent. But the Romans, from whom the French got this word, used all the letters, for they spelled and pronounced it *tempus*.

We happen to be living at a time when a good many English words (too few, however) are being rationalized in their spelling. Why should we add *ugh* to the word *tho*, making the word just twice as long as it need be? Why should we not spell *thru* as we pronounce it? Or, if we insist on adding the unused *ogh*. Why not throw in *ty* or *ski* for good measure.

Life is too short to spend half of it in learning to spell. We should have a letter for every sound and a sound for every letter. Then any one in a few hours or days could learn to spell any word in the language, whether he had ever heard the word before or not. If we cease to use any certain *sound* in a word, we should cease to use in the written word the *letter* that stands for that sound.

The twenty-six letters comprising our alphabet were originally pictures. The forms which these letters now have are much-modified survivals of the original pictures from which they have come.

Letters have been worn into their present peculiar forms by the various peoples thru whose hands they have come to us. The English got their alphabet from the Romans, who obtained it from the Greeks. The Greeks received it from the Phenicians, and the Phenicians from the papyrus writers of Egypt, who in turn received it from those picture writers who carved their curious literature on the granite tombs of the Nile in the remotest dawn of human history.

A, the first letter of the alphabet, is a figure which has been eroded as the result of long wear and tear, from the picture of an eagle; B was originally the picture of a crane; C represents a throne; D a hand; F an asp; H a sieve; K a bowl; L a lioness; M an owl; N a water-line; R a mouth; S a garden; T a lassoo; X a chairback; and Z a duck.

The earliest form of human marriage was marriage by capture. The man stole the woman, generally from another tribe, and carried her away by force.

So deeply rooted is the connection between force and marriage that the pretense of obtaining a bride by force was observed as a form long after all necessity for it had ceased. Gradually it came to be *a mere ceremony*.

In the ceremonies which surround the marriage event among higher peoples there are many vestigial survivals from the ancient form of marriage. The wedding-ring is the old token of

bondage which was accepted by woman when she gave her pledge of slavery and devotion. The coming of the groom with his aids to the marriage is a figurative marauding expedition. The honeymoon is the abduction. And the missile-throwing indulged in by friends and relatives on the departure of the wedded couple is a good-humored counterfeit of the armed protest made by relatives of old when a bride-snatcher came among them.

In all countries where there is a rapid change going on from the monarchial to the democratic form of government, there are always a great many vestigial features of the old monarchial order of things surviving in the new order. The English House of Lords was anciently the main law-making body of England, aside from the king. But its power has gradually passed over to the House of Commons, which more truly represents the people. The House of Lords survives thru the momentum which has come down from a time in the past when it was useful. The same thing is true of the English king. The king originally had almost unlimited power and authority. But he has been hedged about and deprived of one prerogative after another, first by the House of Lords and later by the House of Commons, until he has become *the vermiform appendix of the English government.*

Our *competitive system of industry* is a vestigial institution. It is a survival from the mili-

tant ages of the past. It is a form of warfare. It is unsuited to a world of co-operation and division of labor. Higher men are beings of sympathy. They have the natures to put themselves in the places of others. Their ideal is the Golden Rule. But our system of industry compels us to fight each other. It is a heart-hardener. It is a system of cannibalism. Instead of instilling the feeling of brotherhood, it compels us to eat each other. It will pass away. It is already far advanced in its transition to a system based on sympathy and systematic co-operation.

Everywhere we turn we find evidence that the "civilization," so-called, of higher peoples is a *made-over something,* and that the antecedent thing from which it has been derived is the "civilization" of the savage. In this derived "civilization" we find everywhere features of the old, antecedent, and disappearing order of things—customs, laws, beliefs, languages, ideals, and institutions—which are now no longer functional, but which survive in a more or less dwindling condition in obedience to the same laws as those which perpetuate the vermiform appendix and the hairy covering of our bodies and the hunting and fighting instincts of our natures. It is of vast advantage to us to be able to recognize these vestigial features, in order that we may more skilfully disentangle ourselves from them and at the same time definitely turn our backs on them in our efforts to advance toward a Better World.